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Colstrip
Air Qual Data
MPC & WECo.

COLSTRIP AIR QUALITY DATA, Montana Power Company, and Western Energy Company, 1976

EN 7.D.4.A.1

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

AIR QUALITY BUREAU
Cogswell Building
(406) 449-3454

A. C. Knight, M. D.
Acting Director

May 7, 1976

Mr. Brace Hayden
Environmental Coordinator
Department of State Lands
Capitol Station
Helena, Montana 59601

Dear Mr. Hayden:

The following comments are submitted in reply to the draft Environmental Impact Statement for the surface mining permit applied for by Western Energy Company for Area B of the Rosebud Coal Mine.

Particulate data collected by the Montana Power Company in the town of Colstrip indicates the ambient air quality level is in excess of the Federal Primary Ambient Air Quality Standard. Since the opening of a new coal mine in this area will add to the total ambient air particulate burden, the Air Quality Bureau requires the following steps be taken to reduce the particulate levels caused by the mining activity and the associated activity in the town of Colstrip and also to quantify the source of the particulates.

(1) The use of automatic sprinkler systems on all primary haul roads and the use of watering trucks on secondary haul roads. A schedule of watering will be set up and approved by the Department of State Lands and concurred in by the Air Quality Bureau with increased watering during windy and dry periods.

(2) Regular schedule of street sweeping in the town of Colstrip approved by the Department of State Lands will be initiated. Sweeping should be more frequent during windy or dry periods or periods following rain when mud has been carried onto the city streets by traffic. The schedule of sweeping should be reviewed periodically by the Department of State Lands and the Air Quality Bureau to see that a buildup of dust does not occur between sweepings.

(3) Dust retardant will be applied to unpaved streets in Colstrip and especially those that receive the greatest traffic flow.

(4) The movement of overburden will be planned to take advantage of favorable seasonal wind direction and precipitation peaks.

(5) The use of temporary stabilization of spoil piles with annual grasses will be encouraged. This is if land is not ready for permanent stabilization and will remain uncovered for a period of time.

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(6) When extra waste water is available beyond that needed for the sprinkler system and water trucks, this water will be used to sprinkle reclaimed land or overburden piles.

(7) The Department of State Lands will require coal companies to install enclosures over coal storage piles and dumping facilities. This is a large source of fugitive emissions, and in violation of MAC 16-2.14(1)-S1440, "Particulate Matter, Airborne".

(8) The Western Energy Company will set up an ambient air monitoring program around both Areas A and B as follows:

Equipment needed includes the following:

1. Six high-volume air samplers, one of which is for a background station.
2. Eight dustfall devices, one for a background station.
3. One precipitation device at "met" hill station.
4. Presently operating wind system at "met" hill station.

The enclosed USGS map of Areas A and B indicates generally where the above devices are to be located. Specific locations will be selected with Air Quality Bureau (AQB) personnel.

A background site, which is to be located a minimum of 10 miles to the north or northwest of Colstrip, will include one hi-vol and one dustfall device as a minimum. This background site must be isolated from road dust or any other man-made particulate sources.

The precipitation station is to be located at the present "met" system where the 300' tower stands. The precipitation device will consist of a weighing gauge which measures rain or snow to the nearest one-hundredth inch and which records on a chart. It will be charged with oil-base antifreeze as needed and be protected against severe winds by a wind shield.

The high-volume air samplers and dustfall jars will be installed and operated as per Federal Register, Vol. 36, No. 84, Part II dated April 30, 1971, and ASTM method D1739-70, respectively. The hi-vols will be operated at a one-in-six day interval and at a height of 3 meters. Calendar month dustfall jar changes are required.

The samplers will be inspected on a random basis for proper installation, calibration and operation, by the Air Quality Bureau.

Data which includes daily total suspended particulates (hi-vol), monthly total settled particulates (dustfall), hourly precipitation and hourly wind speed and direction (surface and 300 ft.) will be transmitted to the AQB in SAROAD format on a monthly basis.

For the particulate collecting high-volume and dustfall samplers, a color code index established by the AQB will be used by Western Energy to compare

collected samples. Ten-twelve permanent-colored paint samples which range from black to shades of gray to shades of brown to shades of yellow-green will be used. These paint samples or chips will be retained at the analytical balance used to obtain the mass loadings on the high-volume filter samples. When the filters are brought into the laboratory for equilibration and weighing, their color density will be compared to the nearest numbered paint sample. This value will be recorded alongside the mass loading value. The dustfall samples will likewise be color compared. The goal for this comparison is to visually determine the ratio of coal to topsoil to vegetation-pollen in the mass particulate loadings. The color coding tabulations will be sent on a monthly basis to the AQB.

To correlate the particulate emissions from strip coal mining, the following information is required:

1. The number of tons of coal shipped each from Areas A and B.
2. The number of tons of water applied to haul roads and/or work areas from sprinkler systems or water spreading machines.
3. The number of total hours of heavy equipment operation. Include such machines as draglines, scrapers, coal haulers, front end loaders, caterpillar tractors, drills, coal crushers, and (train) load-out facilities.

Attached is a suggested form for reporting the above data.

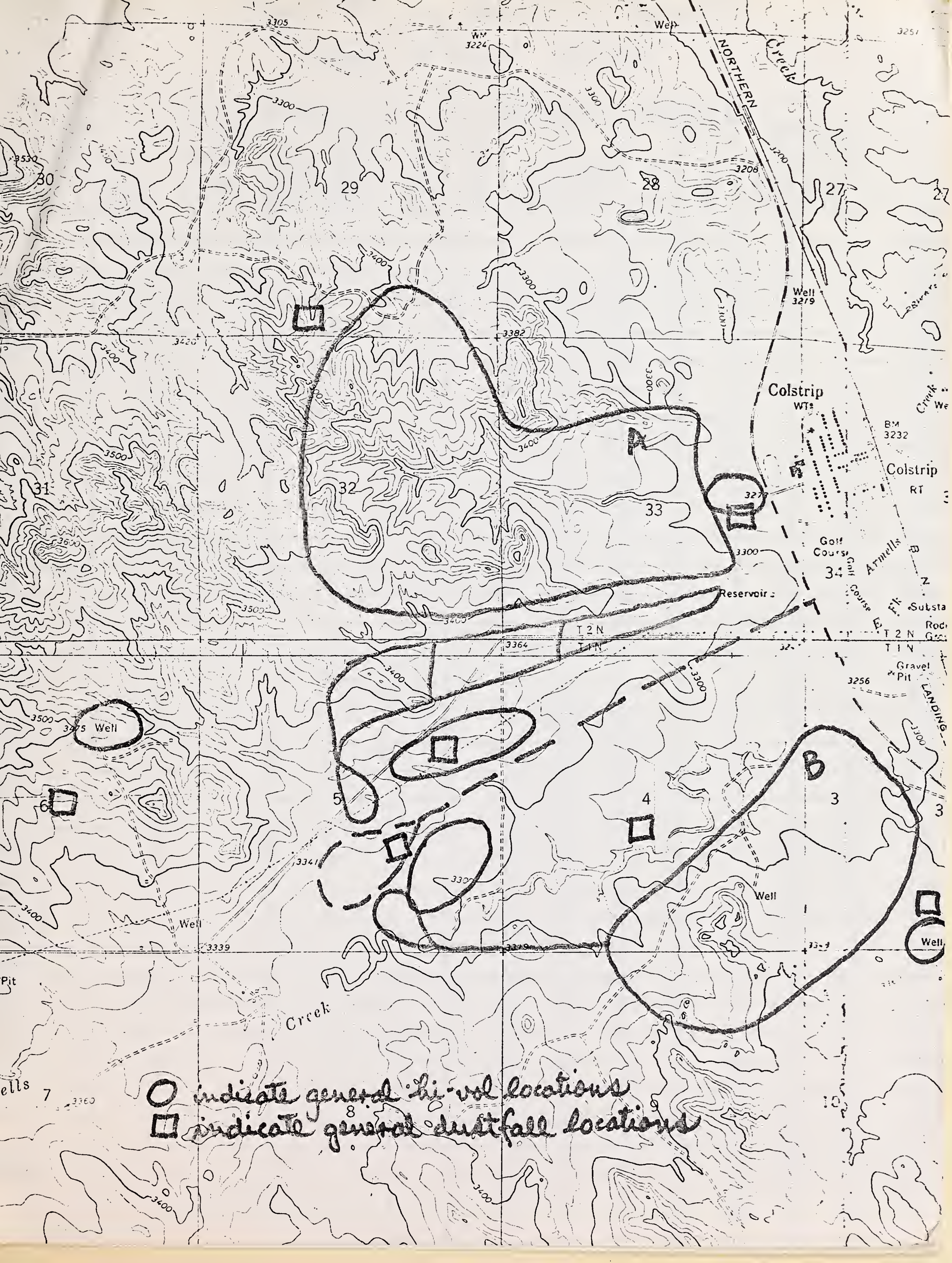
These data, in addition to the particulate data, should enable the company and the State to identify where particulate emissions originate.

Sincerely,

James W. Gelhaus
For M.D.R.
Michael D. Roach
Chief

MDR:kh

Enclosures



○ indicate general hi-vol locations
□ indicate general dustfall locations

Coal Mining Activity Report

Area: A and B Month:

Day	Coal Shipped (tons)		Water Used (tons)	Blasting		Machine Hours									
	Area A	Area B		Powder (tons)	No. of Blasts	Dragline	Scrapers	Coal Haulers	Front end loaders	Cats	Drills	Coal Crushers	Load out Facility	Shovels	
1															
2															
3															
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31															
Total															

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Blys

SURFACE MINING PERMIT FORM

STATE OF MONTANA

DEPARTMENT OF STATE LANDS

Capitol Building
Helena, Montana 59601
Phone 406/449-2074

Surface Mining Permit No. 76003-A002

Pursuant to Chapter 325, SLM, 1973

This permit when executed by the Commissioner of State Lands shall authorize the operator to commence surface mining activities as specified herein and on maps, plans, specifications and applications submitted by the operator, upon filing of a performance bond as specified by the Board.

Name and Address of Operator

Western Energy Co.
40 East Broadway
Butte, Montana 59701

Legal Description of Mine Location

Section T N S R E W County Rosebud

See application data and map

Minerals to be Mined	Areas to be Disturbed During Next 12 Months	Acres to be Disturbed During Life of Operation Covered by this Permit
Coal	491 mining 107 haul roads and facilities 577 + 2 associated disturbance	3800

Initial Bond Level (Per Acre)
$4,067/acre mining disturbance
$3,000/roads and facilities and $200/acre associated.

Total Initial Bond Level $2,677,066.70

This permit authorizes the permittee to conduct mining activities as specified in:

1. The Application for Mining Permit Number 00028 received by the Department on September 30, 1975.
2. The mining and reclamation plan numbered 76003-A002 covering this mine or mine complex approved by the Commissioner of State Lands on August 27, 1976.
3. Permit map labeled Exhibit "A" dated July 9, 1976, certified by Michael R. Grende. No mining to occur in Section 10, Township 1 North, Range 41 East until permission is received from appropriate Federal agencies.
4. Supplement A attached hereto and made a part hereof.

This permit and its associated reclamation plan may be modified by the Board, upon proper application of the permittee, at any time during the term of the permit and for any of the following reasons:

1. To modify the requirements so they will not conflict with existing laws;
2. The previously adopted mining and reclamation plan is impossible or impracticable to implement and maintain;
3. The operator and an authorized agent of the Department mutually agree, in the field, to temporarily modify the plan, pending final approval by the Board.

This permit is approved and issued by:

Commissioner of State Lands

August 27, 1976

Date

Renewal Date: February 19, 1977

This permit is valid for one year and subject to suspension by non-compliance and may be revoked by order of the Board

SUPPLEMENT A
Western Energy Company - Strip Mining Permit 76003
Amendment #002

1) Western Energy shall not conduct mining activities in any portion of Section 10, Township 1 North, Range 41 East, MPM, until such time as a lease or other legal authorization is obtained from the proper federal agency which allows mining of the minerals. Mining activities include but are not limited to topsoil salvage and removal of overburden. Associated disturbance and necessary reclamation for leased and permitted section will be allowed in Section 10, including the construction of roads.

2) The map overlays submitted 8/11/76 labelled "Area B Post Mining Topography (Revision)" shall be corrected after consultation with the department.

3) The seismic monitoring program conducted by WECo shall be made available to the DSL for inspection, review and consultation with seismic experts. Data should be made available in support of WECo's permit blasting commitments and evaluations in relation to Colstrip, hwy. 315, wells, and archaeological and natural values.

4) WECo shall submit a plan for approval by the Department to salvage the A horizon topsoil separate from other available topsoiling material.

5) WECo shall submit a plan for procurement and establishment of native seeds and seedlings. The present WECo revegetation plan does not fully address the problem of establishment of diverse species of shrubs and forbs which are presently found in premined areas. The submitted plan should address the problem of past commercial unavailability of some seeds or seedlings and the quantities of seed or seedlings required for revegetation of reclaimed areas and it should put forth a specific revegetation program explaining where and when specific species will be planted on reclaimed areas to provide vegetation diversity. The submitted plan should consider topography, moisture gradient features, species association, exposure, soil types, climatic information and microclimate requirements when developing this revegetation plan.

6) WECo shall investigate and submit a report to the department discussing whether the McKay coal seam could be mined and marketed providing that the layers within the McKay Coal containing objectional qualities were separated and buried. Blending of the selectively mined McKay coal with the Rosebud coal should also be addressed.

7) WECo shall submit to DSL a program of "subsidence monitoring" on regraded and retopsoiled areas in Area B. This program shall call for survey points on reclaimed areas in order to monitor mined areas for subsidence activity. This program should address specific problems in drainage ways and along highwalls where past problems with subsidence have occurred in the WECo Pit 6 area.

8) The fill over, E. Fork Armells Creek, for dragline and other equipment movement shall be removed from the drainage as soon as the eastern end of Area B mining is concluded or as otherwise determined by the Department. When reclamation occurs, all fill, culverts and debris shall be removed and the disturbed area totally reclaimed. During the fill, placement into the channel and subsequent removal; all activities shall be conducted so as to minimize damage to areas within the corridor and outside of the actual fill area. A program of special seeding and transplanting of tree and shrub species eliminated during fill placement, shall be submitted to the department.

9) An air quality monitoring network shall be installed in locations as approved; it will be periodically monitored by DSL and the Air Quality Bureau of the Department of Health.

10) There appears to be some discrepancy between drill hole analyses of WECo and those of Dr. Doug Pollhopf, as found in his spoil handling research, in respect to Mo concentrations; the latter being substantially higher than the former. WECo shall investigate these differences and report to DSL on their findings.

Items #2, 3, 5, 6, 7, and 8, shall be submitted to the Department not later than 10/27/76. Item #1 shall be effective immediately. Items #4 and 10 shall be submitted to the Department no later than 10/1/76. Item 9 shall be installed and functioning by 10/1/76.

Leo Berry, Jr., Acting Commissioner
Department of State Lands

August 27, 1976
Date

STATE OF MON

DEPARTMENT OF STATE LANDS

STATE CAPITOL HELENA 59601 (406) 449-2074

STATE BOARD OF
LAND COMMISSIONERS
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GOVERNOR
DOLORES COLBURG
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AUDITOR

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COMMISSIONER

SCHOOL LANDS

RESOURCE
FOR THE
PRESENT
N
OPPORTUNITY
FOR THE
FUTURE

August 27, 1976

Western Energy Company
40 East Broadway
Butte MT 59701

ATTENTION Mike Grende

Re: 220 approval, Area B

Dear Mr. Grende:

The Strip Mining Plan pursuant to Title 50, Chapter 14, R.C.M. 1947, entitled "The Strip Mined Coal Conservation Act" is hereby approved for the Rosebud coal seam in Area B.

This approval is granted with the following conditions:

1. Western Energy Company conduct the operation so as not to exclude the possible mining of the McKay seam. The Department has been informed by Western Energy Company that, through the Company's marketing endeavors, the McKay seam may be suitable for sale. Western Energy Company shall continue to keep the Department informed concerning attempts to market the McKay coal.

2. Approximately 97% of the Rosebud coal seam will be loaded-out. Only 2% or less of the coal will be left as a wedge to hold the old Burlington Northern spoils. Approximately 1% of the coal will be lost as clearings.

This approved strip mining plan issued in accordance with the terms stated above shall be in effect for one (1) year from the date listed below.

LEO BERRY, JR., Acting Commissioner

August 27, 1976
DATE

jw

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GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Report of: Dustfall Analysis
Colstrip Project

Date January 13, 1972
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (3)
Post Office Box 1338
Butte, Montana
Attention: Mr. Dan Berube, Engineer

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MPC DUSTFAL

Sample Identification:

On December 2, 1971, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on January 4, 1972 for analysis of dustfall. The samples were prepared and analyzed as per ASTM D-1739 "Collection and Analysis of Dustfall". The test results are summarized below.

TEST RESULTS:

	Location of Collection Station	pH	Total Water Soluble Solids gms. per sq. meter	Total Water Soluble Solids Tons per sq. mile	Total Insoluble Solids gms. per sq. meter	Total Insoluble Solids tons per sq. mile	Total Solids gms. per sq. meter	Total Solids tons pe sq. mil
793	Colstrip Site #3		2.45	7.00	1.49	4.24	3.94	11.24

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HELENA, MONTANA 59620

Mr. Joel Bowers (1)
Post Office Box 419
Colstrip, Montana

Certified

NTL—110

W119

NORTHERN TESTING LABORATORIES

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

1972

Report of: Dustfall Analysis
Colstrip Project

Date February 15, 1971
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (3)
P. O. Box 1338
Butte, Montana 59701
ATTENTION: Mr. Dan Berube
Engineer

Sample Identification:

On January 4, 1972, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on February 2, 1972, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D-1739 "Collection and Analysis of Dustfall". The test results are summarized below.

TEST RESULTS:

Lab No.	Location of Collection Station	pH	Total Water Soluble Solids gms. per sq. meter	Total Water Soluble Solids Tons per sq. mile	Total Insoluble Solids gms. per sq. meter	Total Insoluble Solids Tons per sq. mile	Total Solids gms. per sq. meter	Total Solids Tons per sq. mile
22176	Colstrip Site #3		0.96	2.74	14.16	40.42	15.12	43.16

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Certified

cc: Mr. Joel Bowers (1)

NORTHERN TESTING LABORATORIES

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Report of: Dustfall Analysis
Colstrip Project

Date March 14, 1972
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (3)
P. O. Box 1338
Butte, Montana 59701
ATTENTION: Mr. Dar Berube, Engineer

Sample Identification:

On February 2, 1972, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on March 1, 1972 for analysis of dustfall. The samples were prepared and analyzed as per ASTM D-1739 "Collection and Analysis of Dustfall". The test results are summarized below.

TEST RESULTS:

Lab No.	Location of Collection Station	pH	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
			gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
22459	Colstrip Site #3		6.30	18.00	1.29	3.68	7.59	21.68

Certified

cc: Mr. Joel Bowers (1)

NTL—110

NORTHERN TESTING LABORATORIES

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Report of: Dustfall Analysis
Colstrip Project

Date April 25, 1972
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (3)
P. O. Box 1338
Butte, Montana 59701
ATTENTION: Mr. Dan Berube

Sample Identification:

On March 1, 1972, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on April 1, 1972, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D-1739 "Collection and Analysis of Dustfall". The test results are summarized below.

TEST RESULTS:

La No.	Location of Collection Station	pH	Total Water Soluble Solids gms. per sq. meter	Total Water Soluble Solids Tons per sq. mile	Total Insoluble Solids gms. per sq. meter	Total Insoluble Solids Tons per sq. mile	Total Solids gms. per sq. meter	Total Solids Tons per sq. mile
22790	Colstrip Site No. 3		7.966	22.743	1.848	5.275	9.814	28.018

NOTE: The water soluble solids result for both February and March, 1972, were much higher than earlier tests. The use of ethylene glycol as an antifreeze in the container was considered a possible contaminant. Laboratory tests performed on ethylene glycol indicate that it should not affect the results, yet we recommend that only water be used in the dustfall container during the summer months as a check.

nf2

Certified

cc: Mr. Joel Bowers (1)

NORTHERN TESTING LABORATORIES

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Report of: Dustfall Analysis
Colstrip Project

Date May 16, 1972
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (3)
Post Office Box 1338
Butte, Montana 59701
ATTENTION: Mr. Dan Berube

Sample Identification:

On April 1, 1972, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on May 1, 1972, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D-1739 "Collection and Analysis of Dustfall". The test results are summarized below.

TEST RESULTS:

			Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
No.	Location of Collection Station	pH	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons sq. mile	gms. per sq. meter	Tons per sq. mile
289	Colstrip Site #3		4.27	12.19	5.56	15.87	9.83	28.06

Certified

Mr. Joel Bowers

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

REVISED: September 13, 1972
REVISED: August 19, 1972
REVISED: July 19, 1972
REVISED: July 12, 1972
Date June 7, 1972
Job Number 64-53
Sheet 1 of 1

Report of: Dustfall Analysis
Colstrip Project

Report to: The Montana Power Company
P. O. Box 419
Colstrip, Montana 59323

Sample Identification:

On the dates indicated, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were prepared and analyzed as per ASTM D-1739 "Collection and Analysis of Dustfall". The test results are summarized below.

TEST RESULTS:

Lab No.	Location of Collection Station	Dates	Total Water Soluble Solids gms. per sq. meter	Total Water Soluble Solids Tons per sq. mile	Total Insoluble Solids gms. per sq. meter	Total Insoluble Solids Tons per sq. mile	Total Solids gms. per sq. meter	Total Solids Tons per sq. mile
[illegible]72	Colstrip Site #3	5-01 to 3-31 1972	1.86	5.32	5.40	15.40	7.26	20.72
24092	Colstrip Site #3	5-31 to 7-01 1972	1.19	3.39	3.67	10.47	4.86	13.86
24448	Colstrip Site #3	7-01 to 8-01 1972	0.93	2.66	5.26	15.03	6.20	17.69
25030	Colstrip Site #3	8-01 to 9-01	1.64	4.68	4.01	11.45	5.65	16.13
25860	Colstrip Site #3	9-01 to 9-29	1.27	3.63	8.52	24.32	9.79	27.95

8-31 Sites 7, 8, 9, 10, 11, & 12 begin
Next page

cc: Montana Power Company - Butte (3)

Certified Leland

NORTHERN TESTING LABORATORIES

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Report of: Dustfall Analysis
Colstrip Project

Date October 5, 1972
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (3)
Post Office Box 1338
Butte, Montana 59701
ATTENTION: Mr. Dan Berube

Sample Identification:

On the dates indicated, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were prepared and analyzed in accordance with ASTM D-1739 "Collection and Analysis of Dustfall." The test results are summarized below.

TEST RESULTS:

	Location of Collection Station	Dates	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
			gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
5697	Site No. 7	8-31 to 9-30 1972	4.46	12.74	0.89	2.53	5.35	15.28
5698	Site No. 8	8-31 to 9-30 1972	0.75	2.13	0.26	0.74	1.01	2.87
5699	Site No. 9	8-31 to 9-30 1972	0.45	1.27	0.29	0.84	0.74	2.11
5700	Site No.10	8-31 to 9-30 1972	0.60	1.73	0.81	2.32	1.42	4.05
5701	Site No.11	8-31 to 9-30 1972	0.69	1.97	0.45	1.27	1.14	3.24
5702	Site No.12	8-31 to 9-30 1972	0.36	1.03	0.46	1.32	0.82	2.36

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NTL—110

cc: Montana Power Co. - Colstrip (1)

NORTHERN TESTING LABORATORIES

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Report of: Dustfall Analysis
Colstrip Project

Date November 9, 1972
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, Montana 59323

Sample Identification :

On the dates and at locations indicated, the following dustfall collectors were prepared and set out by your personnel. They were analyzed in accordance with ASTM D-1739 "Collection and Analysis of Dustfall." The test results are summarized below.

TEST RESULTS :

Lab No.	Location of Collection Station	Dates	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
			grams.per sq. meter	Tons per sq. mile	gms . per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons pe sq. mil
26213	Colstrip Site #3	9-30 to 10-31 1972	0.86	2.47	6.49	18.52	7;35	20.99
26214	Colstrip Site #7	9-30 to 10-31 1972	0.75	2.14	2.78	7.95	3.54	10.10
26215	Colstrip Site #8	9-30 to 10-31 1972	1.36	3.87	5.50	15.70	1.71	19.57
26216	Colstrip Site #9	9-30 to 10-31 1972	0.44	1.26	1.69	4.84	2.14	6.10
26217	Colstrip Site #10	9-30-to 10-31 1972	0.56	1.61	0.85	2.44	1.42	4.05
26218	Colstrip Site #11	9-30-to 10-31 1972	0.38	1.08	2.18	6.23	2.56	7.3
26219	Colstrip Site #12	9-30 to 10-31	1.75	5.00	3.26	9.31	5.01	14.3

Certified: ____________________

cc: The Montana Power Co., Butte (3)
Attention: Mr. Dan Berube

NTL—110

NORTHERN TESTING LABORATORIES

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Report of: Dustfall Analysis
Colstrip Project

Date December 19, 1972
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, Montana

Sample Identification:

On the dates and at the locations indicated, the following dustfall collectors were prepared and set out by your personnel. They were analyzed in accordance with ASTM D-1739 "Collection and Analysis of Dustfall". The test results are summarized below.

TEST RESULTS:

Lab No.	Location of Collection Station	Dates	Total Water Soluble Solids gms. per sq. meter		Total Insoluble Solids gms. per sq. meter		Total Solids gms. per sq. meter	
			gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons p sq. mi
26802	Site #3	10-31 to 12-2 1972	2.28	6.50	7.29	20.81	9.56	27.31
803	Site #7	10-31 to 12-2 1972	4.71	13.44	0.37	1.06	5.08	14.50
26804	Site #8	10-31 to 12-2 1972	2.60	7.42	4.64	13.24	7.23	20.66
26805	Site #9	10-31 to 12-2 1972	5.66	16.16	3.40	9.69	9.06	25.80
26806	Site #10	10-31 to 12-2 1972	5.43	15.50	2.64	7.53	8.07	23.0
26807	Site #11	10-31 to 12-2 1972	4.80	13.71	1.20	3.42	6.00	17.1
26808	Site #12	10-31 to 12-2 1972	1.91	5.45	0.85	2.43	2.76	7.8

Certified

cc: The Montana Power Company - Butte - Attn: Mr. Dan Berube (3)

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

ort of: Dustfall Analysis
Colstrip Project

Date January 15, 1973
Job Number 64-53
Sheet 1 of 1

ort to: The Montana Power Company (1)
P. O. Box 419
Colstrip, Montana 59323

Sample Identification:

On the dates and at the locations indicated, the following dustfall collectors were prepared and set out by your personnel. They were analyzed in accordance with ASTM D-1739 "Collection and Analysis of Dustfall". The tests results are summarized below.

TEST RESULTS:

	Location of Collection Station	Dates	Total Water Soluble Solids gms. per sq. meter	Total Water Soluble Solids Tons per sq. meter	Total Insoluble Solids gms. per sq. meter	Total Insoluble Solids Tons per sq. meter	Total Solids gms. per sq. meter	Total Solids Tons per sq. meter
66	Site 3	12-02-72 12-31-72	7.68	21.94	3.15	8.98	10.83	30.92
67	Site 4	12-01-72 1-01-73	0.85	2.42	1.03	2.95	1.88	5.37
68	Site 6	12-01-72 1-01-73	0.63	1.79	1.18	3.37	1.81	5.16
69	Site 7	12-02-72 12-31-72	0.33	0.94	0.46	1.32	0.79	2.26
70	Site 8	12-02-72 12-31-72	0.49	1.40	0.78	2.23	1.27	3.63
71	Site 9	12-02-72 12-31-72	0.36	1.02	0.37	1.06	0.73	2.08
072	Site 10	12-02-72 12-31-72	0.46	1.32	0.37	1.05	0.83	2.37
073	Site 11	12-01-72 12-31-72	0.24	0.68	0.27	0.77	0.51	1.45
	Site 12	12-02-72 12-31-72	0.60	1.71	0.99	2.84	1.59	4.55

Certified

MPC - Butte - Attention: Mr. Dan Berube (3)

NTL—110

NORTHERN TESTING LABORATORIES

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Report of: Dustfall Analysis

Date February 19, 1973
Job Number 64-53
Sheet 1 of 2

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, Montana 59323

Sample Identification:

On the dates and at the locations indicated, the following dustfall collectors were prepared and set out by your personnel. They were analyzed in accordance with ASTM D 1739 "Collection and Analysis of Dustfall". The test results are summarized below.

TEST RESULTS:

b	Location of Collection Station	Dates	Total Water Soluble Solids gms. per sq. meter	Total Water Soluble Solids Tons per sq. mile	Total Insoluble Solids gms. per sq. meter	Total Insoluble Solids Tons per sq. mile	Total Solids gms. per sq. meter	Total Solids Tons per sq. mile
	Site No. 1	12-31-72 to 01-31-73	1.73	4.95	5.67	16.19	7.40	21.14
91	Site No. 2	12-31-72 to 01-31-73	9.56	27.29	1.04	2.98	10.61	30.27
92	Site No. 3	12-31-72 to 01-31-73	8.02	22.90	2.67	7.63	10.69	30.53
93	Site No. 4	01-1-73 to 01-31-73	1.69	4.77	0.17	0.48	1.84	5.25
94	Site No. 6	01-1-73 to 01-31-73	2.60	7.44	0.90	2.56	3.50	10.00
95	Site No. 7	12-31-72 to 01-31-73	0.63	1.81	0.54	1.55	1.17	3.36
96	Site No. 8	12-31-72 to 01-31-73	1.86	5.32	1.72	4.92	3.58	10.24
97	Site No. 9	12-31-72 to 01-31-73	0.85	2.42	0.18	0.52	1.03	2.94
4	Site No. 10	12-31-72 to 01-31-73	1.01	2.87	0.76	2.16	1.77	5.03
499	Site No. 11	12-31-72 to 01-31-73	0.55	1.58	0.07	0.21	0.62	1.7

Northern Testing Laboratories, Inc.

Date: February 19, 1973
Job No. 64-53
Sheet 2 of 2

Report of: Dustfall Analysis

Report to : Montana Power Company
Colstrip, Montana

TEST RESULTS :

ab .	Location of Collection Station	Dates	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
			gms.per sq.meter	Tons per sq.mile	gms.per sq.meter	Tons per sq.mile	gms.per sq.meter	Tons per sq.mile
7500	Site No. 12	12-31-72 to 01-31-73	0.82	2.36	0.69	1.97	1.51	4.33

Certified: ______________________

cc : The Montana Power Company (3)
Butte, Montana
Attention: Mr. Dan Berube

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

REVISED: May 11, 1973
Date March 29, 1973
Job Number 64-53
Sheet 1 of 1

eport of: Dustfall Analysis

eport to: The Montana Power Company (1)
P. O. Box 419
Colstrip, Montana 59323

Sample Identification:

On the dates and at the locations indicated, the following dustfall collectors were prepared and set out by your personnel. They were analyzed in accordance with ASTM D 1739 "Collection and Analysis of Dustfall". The test results are summarized below.

TEST RESULTS:

b .	Location of Collection Station	Dates	Total Water Soluble Solids gms. per sq. meter	Total Water Soluble Solids Tons per sq. mile	Total Insoluble Solids gms. per sq. meter	Total Insoluble Solids Tons per sq. mile	Total Solids gms. per sq. meter	Total Solids Tons per sq. mile
3163	Site No. 1	1-31-73 to 3-03-73	1.47	4.19	0.37	1.05	1.84	5.24 5.24
4	Site No. 2	1-31-73 to 3-03-73	2.03	5.81	0.20	0.56	2.23	6.37 6.37
3165	Site No. 3	1-31-73 to 3-03-73	1.86	5.32	1.27	3.61	3.13	8.94 8.94
8166	Site No. 4	1-31-73 to 3-03-73	3.50	10.00	0.73	2.08	4.23	12.08 12.08
8167	Site No. 6	1-31-73 to 3-03-73	2.43	6.94	0.88	2.52	3.31	9.45 9.45
28168	Site No. 7	1-31-73 to 3-03-73	1.47	4.19	0.60	1.73	2.07	5.92 5.92
28169	Site No. 8	1-31-73 to 3-03-73	1.69	4.84	0.38	1.10	2.08	5.94 5.94
28170	Site No. 9	1-31-73 to 3-03-73	1.07	3.06	0.43	1.23	1.50	4.29 4.29
28171	Site No. 10	1-31-73 to 3-03-73	1.36	3.87	0.51	1.45	1.86	5.32 5.32
2[illegible]72	Site No. 11	1-31-73 to 3-03-73	3.56	10.16	1.78	5.08	5.34	15.24 15.24
28173	Site No. 12	1-31-73 to 3-03-73	1.13	3.23	0.38	1.10	1.51	4.33 4.33

Certified

cc: MPC - Butte, MT; Attn: Dan Berube

NORTHERN TESTING LABORATORIES

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

eport of: Dustfall Analysis

Date April 23, 1973
Job Number 64-53
Sheet 1 of 1

eport to: The Montana Power Company (1)
P. O. Box 419
Colstrip, Montana 59323

Sample Identification:

On the dates and at the locations indicated, the following dustfall collectors were prepared and set out by your personnel. They were analyzed in accordance with ASTM D 1739 "Collection and Analysis of Dustfall". The test results are summarized below.

TEST RESULTS:

	Location of Collection Station	Dates	Total Water Soluble Solids gms. per sq. meter	Total Water Soluble Solids Tons per sq. mile	Total Insoluble Solids gms. per sq. meter	Total Insoluble Solids Tons per sq. mile	Total Solids gms. per sq. meter	Total Solids Tons per sq. mile
5	Site No. 1	3-03-73 to 3-31-73	6.89	19.68	1.35	3.86	8.24	23.54
9	Site No. 2	3-03-73 to 3-31-73	3.90	11.13	1.30	3.71	5.20	14.84
97	Site No. 3	3-03-73 to 3-31-73	2.32	6.61	3.75	10.69	6.07	17.30
98	Site No. 4	3-03-73 to 3-31-73	0.62	1.77	0.94	2.69	1.56	4.46
99	Site No. 6	3-03-73 to 3-31-73	1.36	3.87	1.46	4.18	2.82	8.05
700	Site No. 7	3-03-73 to 3-31-73	0.17	0.48	0.55	1.58	0.72	2.06
701	Site No. 8	3-03-73 to 3-31-73	2.77	7.90	0.72	2.06	3.49	9.96
702	Site No. 9	3-03-73 to 3-31-73	1.02	2.90	0.79	2.26	1.81	5.16
703	Site No. 10	3-03-73 to 3-31-73	0.23	0.65	0.89	2.53	1.12	3.18
7	Site No. 11	3-03-73 to 3-31-73	0.06	0.16	0.84	2.39	0.90	2.55
3705	Site No. 12	3-03-73 to 3-31-73	0.11	0.32	0.60	1.73	0.71	2.05

MPC-Butte-Attn: Dan Berube (3)

Certified

NTL-110

Report of:	Dustfall Analysis Colstrip Project
Date	May 11, 1973
Job Number	64-53
Sheet	1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, Montana 59323

Sample Identification:

On the dates and at the locations indicated, the following dustfall collectors were prepared and set out by your personnel. They were analyzed in accordance with ASTM D 1739 "Collection and Analysis of Dustfall". The test results are summarized below.

TEST RESULTS:

ab o.	Location of Collection Station	Dates	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
			gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
8886	Site No. 1	3-31-73 to 4-28-73	10.96	31.29	3.92	11.19	14.88	42.49
2[illegible]7	Site No. 2	3-31-73 to 4-28-73	1.30	3.71	1.35	3.85	1.48	7.56
2[illegible]88	Site No. 3	3-31-73 to 4-28-73	8.59	24.52	5.29	15.10	13.88	39.61
28889	Site No. 4	3-31-73 to 4-28-73	1.19	3.39	0.92	2.61	2.10	6.00
28890	Site No. 6	3-31-73 to 4-28-73	3.90	11.13	3.73	10.65	7.63	21.78
28891	Site No. 7	3-31-73 to 4-28-73	13.39	38.23	4.34	12.40	17.73	50.63
28892	Site No. 8	3-31-73 to 4-28-73	0.85	2.42	2.23	6.35	3.07	8.77
28893	Site No. 9	3-31-73 to 4-28-73	1.07	3.06	0.68	1.95	1.76	5.02
28894	Site No. 10	3-31-73 to 4-28-73	9.04	25.81	1.42	4.05	10.46	29.86
28895	Site No. 11	3-31-73 to 4-28-73	0.85	2.42	2.53	7.23	3.38	9.65
28896	Site No. 12	3-31-73 to 4-28-73	0.68	1.94	1.00	2.86	1.68	4.79

Certified

(3)

cc: The Montana Power Company
Butte, MT - Attn: Dan Berube

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Report of: Dustfall Analysis
Colstrip Project

Date June 5, 1973
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (3)
P. O. Box 1338
Butte, Montana 59701
ATTENTION: Mr. Dan Berube

Sample Identification

On April 28, 1973, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on May 30, 1973 for analysis of dustfall. The samples were prepared and analyzed as per ASTM D 1739 "Collection and Analysis of Dustfall".

TEST RESULTS:

Lab No.	Location of Collection Station	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
		gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
295	Colstrip Site #1	1.85	5.29	1.49	4.26	3.34	9.55
29504	Colstrip Site #2	1.83	5.21	1.61	4.60	3.44	9.81
29505	Colstrip Site #3	5.75	16.42	5.23	14.94	10.98	31.36
29506	Colstrip Site #4	1.69	4.84	1.47	4.19	3.16	9.03
29507	Colstrip Site #6	2.04	5.82	1.69	4.84	3.73	10.66
29508	Colstrip Site #7	4.09	11.68	3.63	10.37	7.72	22.05
29509	Colstrip Site #8	2.32	6.61	1.99	5.69	4.31	12.30
29510	Colstrip Site #9	2.12	6.05	1.82	5.19	3.94	11.24
29511	Colstrip Site #10	1.45	4.13	1.35	3.84	2.80	7.97
29512	Colstrip Site #11	1.38	3.94	1.23	3.52	2.61	7.46
29513	Colstrip Site #12	1.61	4.58	1.44	4.11	3.05	8.69

Certified

cc: Mr. Joel Bowers (1)
Colstrip, MT

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Revised: July 23, 1973
Date July 18, 1973
Job Number 64-53
Sheet 1 of 1

Report of: Dustfall Analysis
Colstrip Project

Report to: The Montana Power Company (3)
P. O. Box 419
Colstrip, Montana 59323

Sample Identification:

On May 30, 1973, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on June 29, 1973 for analysis of dustfall. The samples were prepared and analyzed as per ASTM D 1739 "Collection and Analysis of Dustfall".

TEST RESULTS:

b .	Location of Collection Station	Total Water Soluble Solids gms. per sq. meter	Total Water Soluble Solids Tons per sq. mile	Total Insoluble Solids gms. per sq. meter	Total Insoluble Solids Tons per sq. mile	Total Solids gms. per sq. meter	Total Solids Tons per sq. mile
01	Site #1	11.30	32.26	0.93	2.66	12.23	34.92
0192	Site #2	3.90	11.13	1.33	3.79	5.23	14.92
0193	Site #3	8.25	23.55	10.40	29.68	18.65	53.23
0194	Site #4	3.22	9.19	1.67	4.76	4.89	13.95
0195	Site #6	3.50	10.00	1.43	4.09	4.93	14.09
0196	Site #7	3.39	9.68	1.62	4.63	5.01	14.31
0197	Site #8	2.43	6.94	0.93	2.66	3.36	9.60
0198	Site #9	2.37	6.78	0.85	2.42	3.22	9.20
0199	Site #10	3.67	10.48	5.64	16.10	9.31	26.58
0200	Site #11	2.54	7.26	0.97	2.78	3.51	10.04
0201	Site #12	3.39	9.68	0.97	2.78	4.36	12.46

Leland J. Walker
Certified

cc: Montana Power Company (3)
Butte; Montana - Attention: Mr. Dan Berube

NTL—11C

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

rt of: Dustfall Analysis
Colstrip Project

Date August 24, 1973
Job Number 64-53
Sheet 1 of 1

rt to: The Montana Power Company (1)
P. O. Box 419
Colstrip, Montana 59323

Sample Identification:

On June 30, 1973, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on July 29, 1973 for analysis of dustfall. The samples were prepared ana analyzed as per ASTM D 1739 "Collection and Analysis of Dustfall".

TEST RESULTS:

Lab No.	Location of Collection Station	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
		gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
30548	Site #1	0.28	0.81	0.87	2.48	1.15	3.29
30549	Site #2	3.22	9.19	1.21	3.47	4.43	12.66
30550	Site #3	0.90	2.58	4.33	12.37	5.23	14.95
30551	Site #4	1.30	3.71	0.84	2.39	2.14	6.10
30552	Site #6	5.08	14.52	1.37	3.92	6.45	18.44
30553	Site #7	4.46	12.74	1.12	3.21	5.58	15.95
30554	Site #8	1.53	4.36	1.21	3.47	2.74	7.83
30555	Site #9	16.44	46.94	9.40	26.82	25.84	73.76
30556	Site #10	5.08	14.52	1.45	4.15	6.53	18.67
30557	Site #11	2.99	8.55	0.87	2.48	3.86	11.03
30558	Site #12	2.43	6.94	0.89	2.53	3.32	9.47

Certified Leland J. [illegible]

cc: Montana Power Company (3)
Butte, Montana
ATTENTION: Mr. Dan Berube
with enclosure

NTL—110

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

Report of: Dustfall Analysis
Colstrip Project

Date October 1, 1973
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
Post Office Box 419
Colstrip, Montana 59323

Sample Identification:

On July 29, 1973, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on August 28, 1973, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D 1739 "Collection and Analysis of Dustfall".

TEST RESULTS:

b .	Location of Collection Station	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
		gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
	Site No. 1	3.50	9.99	2.16	6.17	5.66	16.16
965	Site No. 2	2.15	6.14	1.74	4.97	3.89	11.11
966	Site No. 3	3.79	10.82	4.05	11.56	7.84	22.38
967	Site No. 4	3.62	10.34	1.45	4.14	5.07	14.48
968	Site No. 6	2.88	8.22	1.47	4.20	4.35	12.42
969	Site No. 7	2.26	6.45	1.16	3.31	3.42	9.76
970	Site No. 8	3.33	9.52	1.12	3.20	4.45	12.72
971	Site No. 9	3.39	9.68	1.70	4.85	5.09	14.53
972	Site No. 10	2.60	7.42	1.88	5.37	4.48	12.79
973	Site No. 11	1.86	5.31	0.92	2.63	2.78	7.94
974	Site No. 12	1.58	4.51	3.92	11.19	5.50	15.70

c: Montana Power Company, Butte, MT (3)
Attention: Dan Berube

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

Report of: Dustfall Analysis
Colstrip Project

Date November 7, 1973
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Comapany (1)
Post Office Box 419
Colstrip, MT 59323

Sample Identification

On August 28, 1973, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on September 30, 1973, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D 1739 "Collection and Analysis of Dustfall".

TEST RESULTS

No	Location of Collection Station	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
		gms. per sq. meter	Tons per sq. mile	gms..per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
078	Site 1	2.37	6.77	0.81	2.32	3.18	9.09
32079	Site 2	1.19	3.39	0.76	2.16	1.95	5.55
32080	Site 3	0.39	1.13	3.06	8.73	3.45	9.86
32081	Site 4	0.79	2.26	0.69	1.97	1.48	4.23
32082	Site 6	11.30	32.26	0.89	2.55	12.19	34.81
32083	Site 7	1.13	3.23	0.72	2.06	1.85	5.29
32084	Site 8	0.45	1.29	1.42	4.05	1.87	5.34
32085	Site 9	0.45	1.29	0.41	1.16	.86	2.45
32086	Site 10	3.39	9.68	1.85	5.29	5.24	14.97
32087	Site 11	2.71	7.74	1.44	4.11	4.15	11.85
32088	Site 12	5.20	14.84	0.85	2.44	6.05	17.28

cc: Montana Power Company, Butte, MT (3)
Attention: Dan Berube

CERTIFIED

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

Report of: Dustfall Analysis
Colstrip Project

Date November 20, 1973
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P.O. Box 419
Colstrip, MT 59323

Sample Identification

On September 30, 1973, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on October 27 and 28, 1973, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D 1739 "Collection and Analysis of Dustfall".

b .	Location Collection Station	Date picked up	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
			gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
[illegible]	Site 1	10-28-73	2.94	8.39	1.08	3.10	4.02	11.49
[illegible]	Site 2	10-27-73	2.37	6.77	1.16	3.32	3.53	10.09
586	Site 3	10-28-73	2.94	8.39	6.04	17.24	8.98	25.63
587	Site 4	10-27-73	4.75	13.55	1.97	5.61	6.72	19.16
2588	Site 6	10-27-73	1.41	4.03	1.20	3.43	2.61	7.46
2589	Site 7	10-27-73	5.59	15.97	2.45	6.98	8.04	22.95
2590	Site 8	10-28-73	4.75	13.55	4.18	11.94	8.93	25.49
2591	Site 9	10-28-73	2.99	8.55	2.54	7.26	5.53	15.81
2592	Site 10	10-28-73	3.39	9.68	3.14	8.95	6.53	18.63
2593	Site 11	10-27-73	1.53	4.36	2.82	8.05	4.35	12.41
2594	Site 12	10-28-73	1.58	4.52	0.56	1.60	2.14	6.12

cc: Montana Power Company, Butte, MT (3)
Attention: Dan Berube

CERTIFIED

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

Report of: Dustfall Analysis
Colstrip Project

Date December [illegible], 1973
Lab Number [illegible]
Sheet 1 of 1

Report to: The Montana Power Company
P. O. Box 419
Colstrip, MT 59343

Sample Identification:

On October 27 and 28, 1973, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on November 29, 1973, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D 1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

Lab No.	Location of Collection Station	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
		gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
[illegible]139	Site 1	0.85	2.42	1.14	[illegible]	1.99	5.68 [illegible]
33140	Site 2	0.34	0.97	2.62	7.48	[illegible]	8.45 [illegible]
33141	Site 3	2.77	7.90	5.60	[illegible]	[illegible]	23.88 [illegible]
33142	Site 4	1.36	3.87	0.81	[illegible]	[illegible]	6.19 [illegible]
33143	Site 6	3.11	8.87	0.75	2.13	[illegible]	11.00 [illegible]
33144	Site 7	0.28	0.81	0.55	1.56	[illegible]	2.37 [illegible]
33145	Site 8	1.75	5.00	1.53	4.37	[illegible]	9.37 [illegible]
33146	Site 9	0.45	1.29	1.16	3.32	[illegible]	4.61 [illegible]
33147	Site 10	0.17	0.48	1.75	5.00	[illegible]	5.48 [illegible]
33148	Site 11	2.15	6.13	1.02	2.92	[illegible]	9.05 [illegible]
33149	Site 12	0.79	2.26	0.84	2.39	1.63	4.65 [illegible]

cc: Montana Power Company, Butte (3)
Attention: Dan Berube

CERTIFIED

File
CS

THE NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

Report of: Dustfall Analysis
Colstrip Project

Date January 21, 1974
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, Montana 59323

Sample Identification:

On November 29, 1973, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on December 29, 1973 for analysis of dustfall. The samples were prepared ana analyzed as per ASTM D1739 "Collection and Analysis of Dustfall".

TEST RESULTS:

Lab No.	Location of Collection Station	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
		gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per* sq. mile	gms. per sq. meter	Tons per sq. mile
33573	Site 1	0.34	0.97	3.24	9.26	3.58	10.23
33	Site 2	0.24	0.68	2.29	6.53	2.53	7.21
33575	Site 3	0.26	0.74	6.63	18.92	6.89	19.66
33576	Site 4	0.01	0.27	0.55	1.56	0.65	1.83
33577	Site 6	0.19	0.53	1.03	2.95	1.22	3.48
33578	Site 7	Test invalid due to contamination of container					
33579	Site 8	0.05	0.15	1.29	3.69	1.34	3.84
33580	Site 9	0.59	1.69	1.06	3.02	1.65	4.71
33581	Site 10	0.29	0.84	1.42	4.05	1.71	4.89
33582	Site 11	0.20	0.56	1.51	4.31	1.71	4.87
33583	Site 12	0.80	2.27	0.40	1.13	1.20	3.40

*Values shown with enclosed filters.

Certified

cc: The Montana Power Company (3)
Butte, Montana
Attention: Mr. Dan Berube
with filters enclosed

L B A

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

Report of: Dustfall Analysis
Colstrip, Montana

Date February 20, 1974
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
Post Office Box 419
Colstrip, Montana 59323

Sample Identification

On December 29, 1973, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on February 2, 1974, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall".

TEST RESULTS

ab No.	Location of Collection Station	Water Soluble Solids gms. per sq. meter	Water Soluble Solids Tons per sq. mile	Total Insoluble Solids gms. per sq. meter	Total Insoluble Solids Tons per sq. mile	Total gms. per sq. meter	Total Tons per sq. mile
[illegible]	site 1	0.25	0.71	1.53	4.37	1.78	5.08
33884	site 2	0.17	0.48	1.57	4.48	1.74	4.96
33885	site 3	0.32	0.90	4.37	12.47	4.69	13.37
33886	site 4	0.21	0.60	1.26	3.58	1.47	4.18
33887	site 6	0.46	1.32	1.51	4.31	1.97	5.63
33888	site 7	0.28	0.79	4.25	12.13	4.53	12.92
33889	site 8	0.24	0.68	3.55	10.15	3.79	10.83
33890	site 9	0.27	0.77	3.22	9.19	3.49	9.96
33891	site 10	0.36	1.02	3.10	8.86	3.46	9.88
33892	site 11	0.27	0.76	4.69	13.40	4.96	14.16
33893	site 12	0.27	0.76	1.49	4.24	1.76	5.00

cc: The Montana Power Company (3)
Butte, Montana
Attention: Mr. Dan Berube
with filters enclosed

CERTIFIED

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

Report of: Dustfall Analysis
Colstrip Project

Date April 15, 1974
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, MT 59323

Sample Identification:

On March 3, 1974, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on April 1, 1974, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D 1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

La[illegible]a.	Location of Collection Station	Total Water Soluble Solids gms. per sq. meter	Total Water Soluble Solids Tons per sq. mile	Total Insoluble Solids gms. per sq. meter	Total Insoluble Solids Tons per* sq. mile	Total Solids gms. per sq. meter	Total Solids Tons per sq. mile
34914	Site 1	13.33	38.07	0.36	1.03	13.69	39.10
34915	Site 2	20.96	59.84	0.11	0.32	21.07	60.16
34916	Site 3	63.39	180.98	0.45	1.27	63.84	182.25
34917	Site 4	13.11	37.42	0.23	0.65	13.34	38.07
34918	Site 6	19.72	56.29	0.38	1.10	20.10	57.39
34919	Site 7	17.12	48.87	0.27	0.76	17.39	49.63
34920	Site 8	20.85	59.52	0.20	0.56	21.05	60.08
34921	Site 9	20.34	58.07	0.21	0.61	20.55	58.68
34922	Site 10	22.37	63.87	0.11	0.31	22.48	64.18
34923	Site 11	22.09	63.07	0.04	0.11	22.13	63.18
34924	Site 12	15.99	45.65	0.07	0.19	16.06	45.84

CC: The Montana Power Company (3)
[illegible]tte, Montana
Attention: Mr. Dan Berube

CERTIFIED

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

②

Report of: Dustfall Analysis
Colstrip Project

Date May 30, 1974
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, MT 59323

Dates [illegible]
[illegible]
Do not [illegible]
[illegible] pts!

④

Sample Identification:

On April 1, 1974, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on April 30, 1974, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

[illegible] [illegible] and
a blank if not [illegible]

①

TEST RESULTS: ⑤

b No.	Location of Collection Station	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
		gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per* sq. mile	gms. per sq. meter	Tons per sq. mile
35681	Site 1	3.56	10.16	1.14	3.26	4.70	13.42
35682	Site 2	3.39	9.68	1.01	2.87	4.40	12.55
35683	Site 3	3.73	10.65	6.32	18.03	10.05	28.68
35684	Site 4 ③	2.71 ⑥	7.74	0.66 ⑦	1.87	3.37	9.61
35685	Site 6	2.20	6.29	1.06	3.02	3.26	9.31
**35686	Site 7	10.96	31.29	4.92	14.05	15.88	45.34
35687	Site 8	3.45	9.84	0.88	2.50	4.33	12.34
35688	Site 9	1.30	3.71	0.73	2.10	2.03	5.81
35689	Site 10	1.69	4.84	1.63	4.65	3.32	9.49
35690	Site 11	2.88	8.23	0.89	2.53	3.77	10.76
35691	Site 12	1.98	5.65	0.77	2.19	2.75	7.84

*Values shown on enclosed filters
Site 7 was contaminated by birds.

The Montana Power Company (3)
Butte, Montana
Attention: Mr. Dan Berube

(with filters enclosed)

Certified Leland J. Holker

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

Report of: Dustfall Analysis
Colstrip Project

Date July 5, 1974
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
Post Office Box 419
Colstrip, Montana 59323

Sample Identification:

On April 30, 1974, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on May 31, 1974, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

ab No.	Location of Collection Station	Total Water Soluble Solids gms. per sq. meter	Tons per sq. mile	Total Insoluble Solids gms. per sq. meter	Tons per* sq. mile	Total Solids gms. per sq. meter	Tons per sq. mile
6	Site 1	3.28	9.36	0.62	1.77	3.90	11.13
6536	Site 2	2.54	7.25	0.58	1.65	3.12	8.90
6537	Site 3	3.73	10.65	6.43	18.36	10.16	29.01
6538	Site 4	4.75	13.55	1.06	3.03	5.81	16.58
6539	Site 6	3.16	9.03	0.84	2.40	4.00	11.43
6540	Site 7	0.90	2.57	1.13	3.23	2.03	5.80
6541	Site 8	1.36	3.87	1.85	5.29	3.21	9.16
6542	Site 9	1.30	3.71	0.76	2.16	2.06	5.87
6543	Site 10	1.36	3.88	1.02	2.91	2.38	6.79
6544	Site 11	3.73	10.65	0.91	2.60	4.64	13.25
6545	Site 12	4.41	12.59	1.68	4.80	6.09	17.39

cc: The Montana Power Company (3)
Butte, Montana
Attention: Mr. Dan Berube
with filters enclosed

Certified Leland J. Holzer

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

Report of: Dustfall Analysis
Colstrip Project

Date July 25, 1974
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, MT 59323

Sample Identification:

On May 31, 1974, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on July 1, 1974, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

		Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
ab No.	Location of Collection Station	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per* sq. mile	gms. per sq. meter	Tons per sq. mile
70[illegible]	Site 1	2.54	7.26	1.73	4.95	4.27	12.21
7007	Site 2	1.86	5.32	1.47	4.21	3.33	9.53
7008	Site 3	1.86	5.32	5.86	16.73	7.72	22.05
7009	Site 4	3.11	8.87	2.03	5.79	5.14	14.66
7010	Site 6	4.80	13.71	1.22	3.48	6.02	17.19
7011	Site 7	3.67	10.48	1.05	3.00	4.72	13.48
7012	Site 8	3.73	10.65	1.98	5.66	5.71	16.31
7013	Site 9	1.02	2.90	0.61	1.74	1.63	4.64
7014	Site 10	1.64	4.68	1.75	5.00	3.39	9.68
7015	Site 11	1.58	4.52	1.75	4.98	3.33	9.50
7016	Site 12	1.75	5.00	1.18	3.37	2.93	8.37

MPC - Butte (3)
ttn: Dan Berube
with filters enclosed

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

Report of: Dustfall Analysis
Colstrip Project

Date August 19, 1974
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, Montana 59323

Sample Identification:

On July 1, 1974, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on July 31, 1974 for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall".

TEST RESULTS:

Lab No.	Location of Collection Station	Water Soluble Solids gms. per sq. meter	Water Soluble Solids Tons per sq. mile	Total Insoluble Solids gms. per sq. meter	Total Insoluble Solids Tons per sq. mile*	Total Solids gms. per sq. meter	Total Solids Tons per sq. mile
37801	Site 1*	0.96	2.74	2.42	6.91	3.38	9.65
37802	Site 2	1.07	3.06	1.54	4.39	2.61	7.45
37803	Site 3	0.28	0.81	14.74	42.08	15.02	2.89
37804	Site 4	0.17	0.48	1.34	3.82	1.51	4.30
37805	Site 6	0.57	1.61	0.94	2.69	1.51	4.30
37806	Site 7	1.47	4.19	1.15	3.27	2.62	7.46
37807	Site 8	0.45	1.29	1.09	3.11	1.54	4.40
37808	Site 9	0.57	1.61	1.01	2.89	1.58	4.50
37809	Site 10	0.45	1.29	2.61	7.45	3.06	8.74
37810	Site 11	1.02	2.90	1.10	3.15	2.12	6.05
37811	Site 12	4.29	12.26	1.10	3.13	5.39	15.39

*Collection from 7-14-74 to 7-31-74

Certified Leland J. [illegible]

c: The Montana Power Company (3)
Butte, Montana
Attention; Mr. Dan Berube
with filters enclosed

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

Report of: Dustfall Analysis
Colstrip Project

Date September 9, 1974
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, MT 59323

august 1974

Sample Identification:

On July 31, 1974, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on August 30, 1974, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

Lab No.	Location of Collection Station	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
		gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per* sq. mile	gms. per sq. meter	Tons per sq. mile
38967	Site 1	0.90	2.58	4.74	13.53	5.64	16.11
38968	Site 2	0.73	2.10	1.73	4.95	2.46	7.05
38969	Site 3	2.09	5.97	12.50	35.68	14.59	41.65
38970	Site 4	0.51	1.45	1.27	3.61	1.78	5.06
38971	Site 6	0.73	2.10	1.10	3.13	1.83	5.23
38972	Site 7	0.79	2.26	2.37	6.76	3.16	9.02
38973	Site 8	1.58	4.52	1.16	3.32	2.74	7.84
38974	Site 9	0.40	1.13	1.18	3.37	1.58	4.50
38975	Site 10	0.45	1.29	1.54	4.39	1.99	5.68
38976	Site 11	0.96	2.74	1.23	3.52	2.19	6.26
38977	Site 12	0.17	0.48	0.80	2.27	0.97	2.75

cc: The Montana Power Company (3)
Butte, Montana
Attn: Dan Berube
with filters enclosed

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date October 25, 1974
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, MT 59323

Sample Identification:

On August 30, 1974, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on Septebmer 30, 1974 for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

Lab No.	Location of Collection Station	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
		gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
41[illegible]	Site 1	2.66	7.58	2.05	5.86	4.71	13.44
41053	Site 2	2.49	7.10	1.55	4.42	4.04	11.52
41054	Site 3	2.49	7.10	17.19	49.07	19.68	56.17
41055	Site 4	2.71	7.74	2.33	6.65	5.04	14.39
41056	Site 6	2.37	6.77	1.80	5.15	4.17	11.92
41057	Site 7	2.03	5.81	2.24	6.39	4.27	12.20
41058	Site 8	5.54	15.81	2.60	7.44	8.14	23.25
41059	Site 9	1.86	5.32	1.56	4.45	3.42	9.77
41060	Site 10	2.77	7.90	1.63	4.65	4.40	12.55
41061	Site 11	2.15	6.13	1.76	5.03	3.91	11.16
41062	Site 12	1.58	4.52	1.40	4.00	2.98	8.52

cc: The Montana Power Company (3)
Attention: Dan Berube

Certified Leland J. [illegible]

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis

Date November 25, 1974
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, MT 59323

Sample Identification:

On September 30, 1974, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on October 30, 1974, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

L o.	Location of Collection Station	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
		gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
41912	Site 1	5.37	15.33	2.02	5.76	7.39	21.09
41913	Site 2	13.11	37.43	6.65	18.98	19.76	56.41
41914	Site 3	3.39	9.68	12.76	36.42	16.15	46.10
41915	Site 4	8.00	22.84	1.31	3.74	9.31	26.58
41916	Site 6	7.46	21.30	1.27	3.61	8.73	24.91
41917	Site 7	2.71	7.74	0.96	2.74	3.67	10.48
41918	Site 8	3.62	10.34	19.14	54.65	22.76	64.99
41919	Site 9	6.16	17.59	1.47	4.19	7.63	21.78
41920	Site 10	2.54	7.25	1.16	3.31	3.70	10.56
41921	Site 11	3.79	10.82	1.94	5.53	5.73	16.35
41922	Site 12	1.86	5.31	0.79	2.26	2.65	7.57

cc: MPC - Butte (3)
Attn: Dan Berube
With filters enclosed

Certified Leland J. Volker

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date January 8, 1975
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, MT 59323

Sample Identification:

On October 30, 1974, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on November 30, 1974, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

No.	Location of Collection Station	Total Water Soluble Solids gms. per sq. meter	Total Water Soluble Solids Tons per sq. mile	Total Insoluble Solids gms. per sq. meter	Total Insoluble Solids Tons per sq. mile	Total Solids gms. per sq. meter	Total Solids Tons per sq. mile
740	Site 1	7.79	22.24	1.93	5.51	9.72	27.75
	Site 2					Sample destroyed.	
741	Site 3	9.60	27.42	11.24	32.09	20.84	59.51
742	Site 4	4.18	11.93	1.34	3.82	5.52	15.75
	Site 6					Sample destroyed.	
743	Site 7	1.46	4.17	1.32	3.77	2.78	7.94
744	Site 8	13.45	38.40	1.59	4.55	15.04	42.95
745	Site 9	2.03	5.80	0.72	2.05	2.75	7.85
746	Site 10	2.26	6.45	0.98	2.79	3.24	9.24
747	Site 11	17.40	49.68	0.83	2.37	18.23	52.05
748	Site 12	5.99	17.10	5.56	15.87	11.55	32.97

cc: The Montana Power Company (3)
Attn: Dan Berube (with filters enclosed)
Butte, Montana

Certified Leland J. [illegible]

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date January 20, 1975
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, MT 59323

Sample Identification:

On November 30, 1974, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on December 31, 1974, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

b No.	Location of Collection Station	Water Soluble Solids gms. per sq. meter	Water Soluble Solids Tons per sq. mile	Insoluble Solids gms. per sq. meter	Insoluble Solids Tons per* sq. mile	Total Solids gms. per sq. meter	Total Solids Tons per sq. mile
42862	Site 1	0.96	2.74	1.33	3.81	2.29	6.55
42863	Site 2	3.16	9.02	1.58	4.51	4.74	13.53
42864	Site 3	3.33	9.51	5.10	14.57	8.43	24.08
42865	Site 4	1.92	5.48	0.81	2.32	2.73	7.80
42866	Site 6	2.60	7.42	1.10	3.14	3.70	10.56
42867	Site 7	2.09	5.97	0.82	2.36	2.91	8.83
42868	Site 8	3.39	9.68	6.65	18.99	10.04	28.67
42869	Site 9	2.99	8.54	0.74	2.11	3.73	10.65
42870	Site 10	2.88	8.22	1.07	3.06	3.95	11.28
42871	Site 11	1.53	4.37	1.11	3.17	2.64	7.54
42872	Site 12	1.02	2.90	0.84	2.40	1.86	5.30

cc: MPC-Butte; Attention: Dan Berube (3)
With Filters enclosed

Certified Leland J. Walker

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

eport of: Dustfall Analysis
Colstrip Project

Date February 14, 1975
Job Number 64-53
Sheet 1 of 1

eport to: The Montana Power Company (1)
P O BOX 419
Colstrip MT 59323

Sample Identification:

On December 31, 1974, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on January 31, 1975, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

	Location of Collection Station	Water Soluble Solids		Insoluble Solids		Total Solids	
		gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
8	Site 1	5.08	14.50	1.94	5.54	7.02	20.04
9	Site 2	2.60	7.42	2.57	7.34	5.17	14.76
0	Site 3	3.95	11.28	5.45	15.56	9.40	26.84
1	Site 4	2.37	6.77	1.53	4.37	3.90	11.14
2	Site 6	1.13	3.23	1.37	3.91	2.50	7.14
3	Site 7	1.69	4.83	0.66	1.88	2.35	6.71
4	Site 8	2.71	7.74	29.51	84.25	32.22	91.99
5	Site 9	0.40	1.14	0.67	1.91	1.07	3.05
6	Site 10	0.23	0.66	1.97	5.62	2.20	6.28
7	Site 11	0.23	0.66	1.12	3.20	1.35	3.86
8	Site 12	0.73	2.08	0.73	2.08	1.46	4.16

cc: MPC - Butte (3)
Dan Berube with filters enclosed

Certified

NTL—110

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

ort of: Dustfall Analysis
Colstrip Project

Date March 28, 1975
Job Number 64-53
Sheet 1 of 1

ort to: MONTANA POWER COMPANY (1)
P O BOX 419
COLSTRIP MT 59323

Sample Identification:

On January 31, 1975, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on March 1, 1975, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

	Location of Collection Station	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
o.		gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per* sq. mile	gms. per sq. meter	Tons per sq. mile
939	Site 1	Sample Invalid*		0.61	1.74	Sample Invalid*	
940	Site 2	"		1.73	4.94	"	
941	Site 3	"		3.52	10.05	"	
942	Site 4	"		0.43	1.23	"	
943	Site 6	"		0.58	1.66	"	
944	Site 7	"		0.47	1.34	"	
945	Site 8	"		1.41	4.03	"	
946	Site 9	"		0.33	0.94	"	
947	Site 10	"		5.21	14.87	"	
948	Site 11	"		0.51	1.46	"	
949	Site 12	"		0.41	1.17	"	

*Iron contamination found in the ethylene glycol added in the field to prevent freezing.

cc: MPC - Butte (3)
Attn: Dan Berube
with filters enclosed

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

eport of: Dustfall Analysis
Colstrip Project

Date April 21, 1975
Job Number 64-53
Sheet 1 of 1

eport to: MONTANA POWER COMPANY (1)
P O BOX 419
COLSTRIP MT 59323

Sample Identification:

On March 1, 1975, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on March 31, 1975, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

b No.	Location of Collection Station	Water Soluble Solids		Total Insoluble Solids		Total Solids	
		gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
633	Site 1	Sample Invalid*		1.15	3.28	Sample Invalid*	
6	Site 2	Sample Invalid*		1.77	5.05	Sample Invalid*	
635	Site 3	Sample Invalid*		4.02	11.48	Sample Invalid*	
636	Site 4	Sample Invalid*		0.63	1.80	Sample Invalid*	
637	Site 6	Sample Invalid*		1.25	3.57	Sample Invalid*	
638	Site 7	Sample Invalid*		1.00	2.86	Sample Invalid*	
639	Site 8	Sample Invalid*		2.59	7.39	Sample Invalid*	
640	Site 9	Sample Invalid*		0.77	2.20	Sample Invalid*	
641	Site 10	Sample Invalid*		7.18	20.50	Sample Invalid*	
642	Site 11	Sample Invalid*		1.06	3.03	Sample Invalid*	
643	Site 12	Sample Invalid*		0.98	2.80	Sample Invalid*	

: MPC - Butte (3)
Dan Berube with Filters Enclosed

*Iron contamination found in the ethylene glycol that was added in the field to prevent freezing.

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date May 23, 1975
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P O BOX 419
COLSTRIP MT 59323

Sample Identification:

On March 31, 1975, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on May 1, 1975 for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739, "Collection and Analysis of Dustfall."

TEST RESULTS:

	Location of Collection Station	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
		gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
551	Site 1	4.97	14.19	2.09	5.97	7.06	20.16
552	Site 2	3.73	10.65	1.85	5.28	5.58	15.93
553	Site 3	4.97	14.19	6.64	18.96	11.61	33.15
554	Site 4	2.82	8.05	1.66	4.74	4.48	12.79
555	Site 6	2.71	7.74	2.38	6.79	5.09	14.53
556	Site 7	8.81	25.15	5.05	14.42	13.86	39.57
557	Site 8	3.45	9.85	4.04	11.53	7.49	21.38
	Site 9	Sample invalid, due to equipment malfunction.					
558	Site 10	2.66	7.59	2.32	6.62	4.98	14.21
559	Site 11	0.45	1.28	2.20	6.28	2.65	7.56
560	Site 12	1.64	4.68	1.82	5.20	3.46	9.88

cc: The Montana Power Company (3)
Butte, Montana
Attention: Mr. Dan Berube
with filters enclosed

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date June 18, 1975
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P O BOX 419
COLSTRIP MT 59323

Sample Identification:

On May 1, 1975, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on June 1, 1975 for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739, "Collection and Analysis of Dustfall."

TEST RESULTS:

		Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
L[illegible] No.	Location of Collection Station	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
46361	Site 1	5.42	15.47	3.07	8.76	8.49	24.23
46362	Site 2	2.49	7.11	2.34	6.68	4.83	13.79
46363	Site 3	5.08	14.50	7.92	22.61	13.00	37.11
46364	Site 4	2.20	6.28	2.24	6.40	4.44	12.68
46365	Site 6	2.88	8.22	2.47	7.05	5.35	15.27
46366	Site 7	5.99	17.10	4.65	13.28	10.64	30.38
46367	Site 8	2.32	6.62	3.42	9.76	5.74	16.38
46368	Site 9	7.23	20.64	2.41	6.88	9.64	27.52
46369	Site 10	1.18	3.37	3.49	9.96	4.67	13.33
46370	Site 11	1.02	2.91	3.51	10.02	4.53	12.93
46371	Site 12	1.47	4.20	2.69	7.68	4.16	11.88

cc: The Montana Power Company (3)
Butte, Montana
Attention: Mr. Dan Berube
with filters enclosed

Certified

Extra Copy File

June-July 75

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date July 17, 1975
Job Number 64-53
of

ROUTING Sheet INIT.

LABRIE	
BERUBE	
FILE	

Report to: MONTANA POWER COMPANY
P O BOX 419
COLSTRIP MT 59323

Sample Identification:

On June 1, 1975, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on July 1, 1975, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739, "Collection and Analysis of Dustfall."

TEST RESULTS:

Lab No.	Location of Collection Station	Total Water Soluble Solids		Total Insuluble Solids		Total Solids	
		gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
47400	Site 1	2.99	8.54	1.64	4.68	4.63	13.22
47401	Site 2	5.03	14.36	2.35	6.71	7.38	21.07
47402	Site 3	5.14	14.67	5.10	14.56	10.24	29.23
47403	Site 4	5.93	16.93	2.11	6.02	8.04	22.95
47404	Site 6	4.41	12.59	1.88	5.37	6.29	17.96
47405	Site 7*	15.25	43.54	10.28	29.35	25.53	72.89
47406	Site 8	4.69	13.39	7.91	22.58	12.60	35.97
47407	Site 9	4.57	13.05	6.44	18.39	11.01	31.44
47408	Site 10	3.45	9.85	3.32	9.48	6.77	19.33
47409	Site 11	3.28	9.36	1.81	5.17	5.09	14.53
47410	Site 12	2.49	7.11	3.21	9.16	5.07	16.27

*Sample was contaminated in the field by bird wastes.

cc: MPC - Butte (3)
Dan Berube
With filters enclosed

Certified Edward J. [illegible]

July 1-July 31(75)

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date August 18, 1975
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P O BOX 419
COLSTRIP MT 59323

Sample Identification:

On July 1, 1975, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on July 31, 1975, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

Lab No.	Location of Collection Station	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
		gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq., meter	Tons per sq. mile
48581	Site 1	0.73	2.08	2.11	6.02	2.84	8.10
48582	Site 2	1.02	2.91	1.71	4.88	2.73	7.79
48483	Site 3	1.58	4.51	11.23	36.06	12.81	40.57
48484	Site 4	6.50	18.56	10.13	28.92	16.63	47.48
48485	Site 6	2.32	6.62	1.62	4.63	3.94	11.25
48586	Site 7	1.24	3.54	1.94	5.54	3.18	8.72
48587	Site 8	0.40	1.14	12.36	35.29	12.76	36.43
48588	Site 9	2.37	6.77	2.89	8.25	5.26	15.02
48589	Site 10	1.75	5.00	5.79	16.53	7.54	21.53
48590	Site 11	0.73	2.08	1.64	4.68	2.37	6.76
48591	Site 12	3.50	9.99	8.93	25.50	12.43	35.49

cc: MPC - Butte (3)
Dan Berube with filters enclosed

Certified Leonard J. [illegible]

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date September 17, 1975
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P O BOX 419
COLSTRIP MT 59323

Sample Identification:

On July 31, 1975, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on August 31, 1975, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

Lab No.	Location of Collection Station	Total Water Soluble Solids gms. per sq. Meter	Total Water Soluble Solids Tons per sq. mile	Total Insoluble Solids gms. per sq. meter	Total Insoluble Solids Tons per sq. mile	Total Solids gms. per sq. meter	Total Solids Tons per sq. mile
49507	Site 1	1.98	5.65	2.87	8.19	4.85	13.84
49508	Site 2	1.30	3.71	3.53	10.08	4.83	13.79
49509	Site 3	1.53	4.37	18.55	52.96	20.08	57.33
49510	Site 4	1.30	3.71	2.92	8.34	4.22	12.05
49511	Site 6	1.36	3.88	2.07	5.91	3.43	9.79
49512	Site 7	2.09	5.97	2.55	7.28	4.64	13.25
49513	Site 8	1.98	5.65	39.80	113.63	41.78	119.28
49514	Site 9	1.47	4.20	1.86	5.31	3.33	9.51
49515	Site 10	2.37	6.77	17.30	49.39	19.67	56.16
49516	Site 11	1.07	3.05	2.53	7.22	3.60	10.27
49517	Site 12	0.40	1.14	3.39	9.68	3.79	10.82

cc: MPC - Butte (3)
Dan Berube
With filters enclosed

Certified Leland J. Walker

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

15

Report of: Dustfall Analysis
Colstrip Project

Date October 25, 1974
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, MT 59323

Sample Identification:

On August 30, 1974, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on Septebmer 30, 1974 for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

Lab No.	Location of Collection Station	Total Water Soluble Solids gms. per sq. meter		Total Insoluble Solids gms. per sq. meter		Total Solids gms. per sq. meter	
			Tons per sq. mile		Tons per sq. mile		Tons per sq. mile
41052	Site 1	2.66	7.58	2.05	5.86	4.71	13.44
41053	Site 2	2.49	7.10	1.55	4.42	4.04	11.52
41054	Site 3	2.49	7.10	17.19	49.07	19.68	56.17
41055	Site 4	2.71	7.74	2.33	6.65	5.04	14.39
41056	Site 6	2.37	6.77	1.80	5.15	4.17	11.92
41057	Site 7	2.03	5.81	2.24	6.39	4.27	12.20
41058	Site 8	5.54	15.81	2.60	7.44	8.14	23.25
41059	Site 9	1.86	5.32	1.56	4.45	3.42	9.77
41060	Site 10	2.77	7.90	1.63	4.65	4.40	12.55
41061	Site 11	2.15	6.13	1.76	5.03	3.91	11.16
41062	Site 12	1.58	4.52	1.40	4.00	2.98	8.52

OCT 28 1974

JOB [illegible]
COLSTRIP UNITS 1 & 2

FILE NO. OF THE ORIGINAL
2

To:	Copies	Info	Act
CLIENT	2		
E.G. MGR.			
[illegible] MGR.			
[illegible]			
A.G.I. P.E.			
MECH SUPV			
ELEC. SUPV.			
CIVIL SUPV			
C/O SUPV			
C.S. SUPV.			
ARCH. SUPV.			
PURCH			
COST TREND			
EXPEDITING			
ENG. PLAN.			
PROJ. ADMIN			
TICKLER			

ROUTING OF ORIGINAL
1

BECHTEL [illegible] CORP.
San Francisco

cc: The Montana Power Company (3)
Attention: Dan Berube

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date November 12, 1975
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

On October 1, 1975, the following dustfall collectors were prepared and set our by your personnel at the following locations. They were picked up on November 1, 1975, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

Lab No.	Location of Collection Station	Total Water Soluble Solids gms. per sq. meter	Total Water Soluble Solids Tons per sq. mile	Total Insoluble Solids gms. per sq. meter	Total Insoluble Solids Tons per sq. mile	Total Solids gms. per sq. meter	Total Solids Tons per sq. mile
51585	Site 1	0.23	0.66	1.89	5.40	2.12	6.06
51586	Site 2	0.62	1.77	1.90	5.42	2.52	7.19
51587	Site 3	2.37	6.77	13.54	38.66	15.91	45.43
51588	Site 4	0.56	1.60	1.02	2.91	1.58	4.51
51589	Site 6	0.85	2.43	1.34	3.83	2.19	6.26
51590	Site 7	0.85	2.43	1.68	4.80	2.53	7.23
51591	Site 8	0.56	1.60	11.58	33.06	12.14	34.66
51592	Site 9	0.40	1.14	1.13	3.23	1.53	4.37
51593	Site 10	3.51	10.02	2.55	7.28	6.06	17.30
51594	Site 11	1.49	4.25	2.15	6.14	3.64	10.39
51595	Site 12	2.09	5.97	1.24	3.54	3.33	9.51

cc: The Montana Power Co. (3)
ATTN: Mr. Dan Berube
with filters enclosed
Butte, MT

Certified Terry G. O'Dell

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date December 22, 1975
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

On November 1, 1975, the following dustfall collectors were prepared and set our by your personnel at the following locations. They were picked up on December 1, 1975, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

Lab No.	Location of Collection Station	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
		gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
52832	Site 1	1.19	3.40	2.24	6.40	3.43	9.80
52833	Site 2	0.73	2.08	1.76	5.02	2.49	7.10
52834	Site 3	15.48	44.20	16.24	46.37	31.72	90.57
52835	Site 4	1.53	4.37	1.38	3.94	2.91	8.31
52836	Site 6	1.75	5.00	1.77	5.05	3.52	10.05
52837	Site 7	52.26	149.20	27.72	79.14	79.98	228.34
52838	Site 8	2.99	8.54	15.09	43.08	18.08	51.62
52839	Site 10	1.41	4.03	1.36	3.88	2.77	7.91
52840	Site 11	1.19	3.40	0.79	2.26	1.98	5.66
52841	Site 11a*	5.03	14.36	0.85	2.43	5.88	16.79
52842	Site 12	3.33	9.51	0.51	1.46	3.84	10.79

*Two samples labeled Site 11 were received.

The Montana Power Co. (3)
ATTN: Mr. Dan Berube
Butte, MT
(Filters enclosed)

CERTIFIED Gary G. O'Dell

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date January 30, 1976
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

On December 1, 1975, the following dustfall collectors were prepared and set our by your personnel at the following locations. They were picked up on January 3, 1976, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

ab No.	Location of Collection Station	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
		gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
54177	Site 1	0.40	1.13	9.29	26.52	9.69	27.65
54178	Site 2	0.45	1.29	12.57	35.89	13.02	48.91
54179	Site 3	2.26	6.45	11.65	33.26	13.91	39.71
54180	Site 4	0.96	2.74	3.24	9.24	4.20	11.98
54181	Site 6	0.96	2.74	1.72	4.92	2.68	7.66
54182	Site 7	0.28	0.81	9.84	28.08	10.12	28.89
54183	Site 8	0.51	1.45	11.51	32.86	12.02	34.31
54184	Site 9	0.06	0.16	9.17	26.18	9.23	26.34
54185	Site 10	0.23	0.65	11.65	33.26	11.18	33.91
54186	Site 11	0.17	0.48	9.15	26.13	9.32	26.61
54187	Site 12	0.68	1.94	1.51	4.31	2.19	6.25

Certified Gary G. O'Dell

c: The Montana Power Co. (3)
Butte, MT
ATTN: Dan Berube

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date February 25, 1976
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O.BOX 419
COLSTRIP, MT 59323

Sample Identification:

The following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on January 31, 1976 for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall".

TEST RESULTS:

			Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
No.	Location of Collection Station	Date Set Out	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons p sq. mi
4990	Site 1	1-2-76	1.30	3.71	6.50	18.56	7.80	22.2
4991	Site 2	1-2-76	1.86	5.31	4.31	12.31	6.17	17.6
4992	Site 3	1-2-76	2.32	6.62	19.59	55.93	21.91	62.5
4993	Site 4	1-2-76	1.02	2.91	4.28	12.22	5.30	15.1
4994	Site 6	1-3-76	2.03	5.80	8.18	23.35	10.21	29.15
4995	Site 7	1-3-76	2.66	7.59	11.62	33.18	14.28	40.77
4996	Site 8	1-2-76	0.62	1.77	17.16	48.99	17.78	50.76
4997	Site 9	1-3-76	2.20	6.28	6.40	18.27	8.60	24.55
4998	Site 10	1-2-76	0.28	0.80	10.17	23.04	10.45	29.84
4999	Site 11	1-2-76	1.07	3.05	2.40	6.85	3.47	9.90
5000	Site 12	1-2-76	1.75	5.00	6.46	18.44	8.21	23.44

Certified Gary G. O'Dell

MPC - Butte, MT (3)
ATTN: Dan Berube
with filters enclosed

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date August 25, 1976
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

On July 1, 1976, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on July 31, 1976, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

Lab No.	Location of Collection Station	Total Water Soluble Solids gms. per sq. meter	Total Water Soluble Solids Tons per sq. mile	Total Insoluble Solids gms. per sq. meter	Total Insoluble Solids Tons per sq. mile	Total Solids gms. per sq. meter	Total Solids Tons per sq. mile
948	Site 1	2.99	8.55	2.68	7.65	5.67	16.2
64949	Site 2	3.33	9.52	1.65	4.71	4.98	14.23
64950	Site 3	3.79	10.81	12.86	36.71	16.65	47.52
64951	Site 4	3.39	9.68	4.03	11.50	7.42	21.18
64952	Site 6	1.19	3.39	3.00	8.57	4.19	11.96
64953	Site 7*	3.39	9.68	3.29	9.39	6.68	19.07
64954	Site 8	1.13	3.23	20.47	58.46	21.60	61.69
64955	Site 9*	6.38	18.23	7.86	22.45	14.24	40.68
64956	Site 10	0.90	2.58	2.06	5.87	2.96	8.45
64957	Site 11	1.58	4.52	2.28	6.52	3.86	11.04
	Site 12	Sample Invalid - Heavily Contaminated By Bird Droppings					

*Sample appeared contaminated by bird droppings.

MPC - Butte, MT (3)
ATTN: Dan Berube
with filters enclosed.

Certified Gary G. O'Dell

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date September 17, 1976
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

On July 31, 1976, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on August 31, 1976, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

		Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
b No.	Location of Collection Station	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
65571	Site 1	1.13	3.23	3.10	8.84	4.23	12.07
65572	Site 2	2.03	5.80	2.24	6.40	4.27	12.20
65573	Site 3	3.33	9.52	13.74	39.23	17.07	48.75
65574	Site 4	2.77	7.90	2.86	8.16	5.63	16.06
65575	Site 6	1.86	5.32	2.58	7.37	4.44	12.69
65576	Site 7	1.53	4.36	1.08	3.08	2.61	7.44
65577	Site 8	2.60	7.42	8.97	25.61	11.57	33.03
65578	Site 9	1.98	5.65	1.67	4.77	3.65	10.42
65579	Site 10	2.32	6.61	2.34	6.71	4.66	13.32
65580	Site 11	1.98	5.65	1.55	4.43	3.53	10.08
65581	Site 12	2.71	7.74	2.27	6.48	4.98	14.22

cc: Dan Berube - MPC (5)
with filters enclosed

Certified Gary G. O'Dell

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date October 22, 1976
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

On August 31, 9176, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on September 29, 1976, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

		Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
ab No.	Location of Collection Station	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
00	Site 1	2.49	7.10	2.21	6.31	4.70	13.41
66901	Site 2	2.09	5.97	1.61	4.60	3.70	10.57
66902	Site 3	4.52	12.90	7.75	22.13	12.27	35.03
66903	Site 4	3.16	9.03	2.61	7.45	5.77	16.48
66904	Site 6	1.86	5.32	0.95	2.73	2.81	8.05
66905	Site 8	2.82	8.07	15.89	45.36	18.71	7 53.43
66906	Site 9	1.53	4.36	1.24	3.53	2.77	7.89
66907	Site 10	0.90	2.58	1.69	4.82	2.59	7.40
66908	Site 11	1.13	3.23	1.19	3.40	2.32	6.63
66909	Site 12	0.90	2.58	0.85	2.42	1.75	5.00

No Sample Received from Site 7

cc: Dan Berube (5)
MPC - Butte

Certified Gary G. O'Dell

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date November 29, 1976
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

On September 29, 1976, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on November 1, 1976, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

Lab No.	Location of Collection Station	Total Water Soluble Solids gms. per sq. meter	Total Water Soluble Solids Tons per sq. mile	Total Insoluble Solids gms. per sq. meter	Total Insoluble Solids Tons per sq. mile	Total Solids gms. per sq. meter	Total Solids Tons per sq. mile
.38	Site 1	1.75	5.00	0.76	2.18	2.51	7.18
0139	Site 2	3.11	8.87	0.21	0.61	3.32	9.48
0140	Site 3	5.20	14.84	17.88	51.04	23.08	65.88
0141	Site 4	1.53	4.36	2.72	7.77	4.25	12.13
0142	Site 6	3.73	10.65	3.38	9.65	7.11	20.30
0143	Site 8	3.90	11.13	13.99	39.94	17.89	7 51.07
0144	Site 9	0.73	2.10	1.02	2.92	1.75	5.02
0145	Site 10	1.19	3.39	2.68	7.66	3.87	11.05
0146	Site 11	2.66	7.58	2.72	7.77	5.38	15.35
	Site 12*						

*Sample Invalid - contaminated by birds
No Sample received for Site 7.

cc: MPC - Butte (5)

Certified Gary G. O'Dell

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date December 22, 1976
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

On November 1, 1976, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on December 1, 1976, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

Lab No.	Location of Collection Station	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
		gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
9	Site 1	10.45	29.84	1.42	4.06	11.87	33.90
0690	Site 2	1.19	3.39	2.38	6.81	3.57	10.20
0691	Site 3	2.82	8.06	9.12	26.05	11.94	34.11
0692	Site 4	2.15	6.13	0.69	1.98	2.84	8.11
0693	Site 6	1.19	3.39	1.19	3.40	2.38	6.79
0694	Site 8	2.94	8.39	14.96	42.73	17.90	51.12
0695	Site 9	1.53	4.36	0.74	2.11	2.27	6.47
0696	Site 10	2.37	6.77	2.34	6.69	4.71	13.46
0697	Site 11	3.11	8.87	1.47	4.21	4.58	13.08
0698	Site 12	1.86	5.32	0.85	2.44	2.71	7.76

: MPC - Butte (5)
ATTN: Dan Berube

Certified

MPC
SERVING YOU IS OUR BUSINESS
THE MONTANA POWER COMPANY
GENERAL OFFICES: 40 EAST BROADWAY, BUTTE, MONTANA 59701 · TELEPHONE 406 / 723-5421

RTE.	ACT.	ACC.
	FILE	
TECH	ADM	ENF

March 12, 1976

David Maughan
State Department of Health and
Environmental Sciences
Cogswell Building
Helena, MT 59601

Dear Dave:

At your request, I am enclosing the latest dust fall and suspended particulate results from our air quality monitoring program at Colstrip. This data covers the period from June of 1975 through the present. I trust this will meet your needs.

Very truly yours,

Joel M Bowers

Joel Bowers
Thermal Generation Engineer

JB/mo/5:2
Encl.

[illegible]
1976
[illegible] Div.

THE MONTANA POWER COMPANY
GENERAL OFFICES: 40 EAST BROADWAY, BUTTE, MONTANA 59701 · TELEPHONE 406 / 723-5421
SERVING YOU IS OUR BUSINESS

RE 4/12
TS 4/15
JG 4/18
DM
MR REV. NOTE
TS
TLUR ENF

DAVE
CAN YOU USE THESE SHEETS; DO YOU HAVE THE ORIGINAL ONES SENT US? T.S

April 7, 1977

MIKE
These sheets should be duplicates of what we already have. However, The sheets with this info could not be found when I needed it, TS 4/15/77

* Are these in addition to or duplicates of what we already have - If duplicate I don't think we should harass the company
Mike

MIKE, I need these sheets to see why & calculate a geo mean of 102 & M.P.C. calculates a 103, T.S

Mr. Michael D. Roach, Chief
Air Quality Bureau
Department of Health and
Environmental Sciences
Capitol Station
Helena, MT 59601

Dear Mr. Roach:

RE: Colstrip Units #1 and #2
Air Quality Monitoring Data

The enclosed Air Quality Monitoring Data sheets are being transmitted to you in response to a telephone request by your Mr. Tom Schmidt on April 7, 1977. These sheets are only for suspended particulate matter and water soluble sulfates for the year 1976. Complete air quality monitoring data sheets for 1976 have been sent to your office in previous letters.

If there are any comments concerning the data sheets, please contact us.

Very truly yours,

D. T. Berube

D. T. Berube
Assistant Chief Engineer
Generation

TC/kh/4:12

Enclosure

cc: T. J. McGrath

I would appreciate seeing the originals as they come in. Also they should be put in the ENF file. Do we have a study plan for these sites? Sites 1, 2 & 3 don't mean much to me.
JWG

RECEIVED
APR 11 1977
MDHES
AIR QUALITY BUREAU
ONF. TEMP. PERM.

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date January 31, 1977
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

On December 1, 1976, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on January 1, 1977, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

		Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
ab No.	Location of Collection Station	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
1082	Site 1	2.20	6.29	0.81	2.32	3.01	8.61
1083	Site 2	1.24	3.55	3.07	8.76	4.31	12.31
1084	Site 3	0.96	2.74	9.11	26.02	10.07	28.76
1085	Site 4	2.49	7.10	0.59	1.68	3.08	8.78
1086	Site 6	4.97	14.19	1.51	4.32	6.48	18.51
1087	Site 7*	3.45	9.84	4.07	11.63	7.52	21.47
1088	Site 8	3.22	9.19	17.59	50.21	20.81	59.40
1089	Site 10	0.68	1.94	3.40	9.69	5.34	11.63
1090	Site 11	4.07	11.61	1.34	3.84	5.41	15.45
1091	Site 12	1.41	4.03	0.94	2.69	2.35	6.72

*Site 7 was exposed from 8/31/76 to 1/4/77

cc: MPC - Dan Berube (5)
Butte, MT
(Filters enclosed)

Certified Gary G. O'Dell

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date March 9, 1977
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

On January 1, 1977, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on February 1, 1977, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

Lab No.	Location of Collection Station	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
		gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons pc sq. mil
1824	Site 1	0.45	1.29	1.43	4.08	1.88	5.37
1825	Site 2	6.61	18.87	2.55	7.27	9.16	26.14
1826	Site 3	1.41	4.03	5.01	14.29	6.42	18.32
1827	Site 4	2.82	8.06	0.95	2.71	3.77	10.77
1828	Site 6	0.11	0.32	1.11	3.18	1.22	3.50 7
1829	Site 8	2.15	6.13	7.01	20.02	9.16	26.15 9
1830	Site 10	2.94	8.39	2.08	5.94	5.02	14.33
1831	Site 11	0.45	1.29	0.95	2.71	1.40	4.00
1832	Site 12	1.19	3.39	0.82	2.34	2.01	5.73

cc: MPC - Butte (5)
Dan Berube

Certified Gary G. O'Dell

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of:	Dustfall Analysis Colstrip Project	Date	April 7, 1977
		Job Number	64-53
		Sheet	1 of 1

Report to:
THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

On February 1, 1977, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on March 1, 1977, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

		Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
ab No.	Location of Collection Station	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
318	Site 1	0.62	1.77	0.85	2.44	1.47	4.21
2319	Site 2	0.62	1.77	1.56	4.47	2.18	6.24
2320	Site 3	0.56	1.61	7.66	21.86	8.22	23.47
2321	Site 4	0.23	0.65	0.54	1.55	0.77	2.20
2322	Site 6	0.17	0.48	1.51	4.31	1.68	4.79
2323	Site 8	0.96	2.74	13.38	38.20	14.34	7 40.94
2324	Site 10	0.17	0.48	1.07	3.06	1.24	9 3.54
2325	Site 11	0.17	0.48	0.84	2.40	1.01	2.88
2326	Site 12	0.45	1.29	0.37	1.05	0.82	2.34

cc: MPC - Butte (5)
Dan Berube

Certified Gary G. O'Dell

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date April 21, 1977
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

On March 1, 1977, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on April 1, 1977, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

ab No.	Location of Collection Station	Total Water Soluble Solids gms. per sq. meter	Total Water Soluble Solids Tons per sq. mile	Total Insoluble Solids gms. per sq. meter	Total Insoluble Solids Tons per sq. mile	Total Solids gms. per sq. meter	Total Solids Tons pe sq. mil
3176	Site 1	0.06	0.16	1.56	4.47	1.62	4.63
3177	Site 2	0.11	0.32	1.72	4.90	1.83	5.22
3178	Site 3	2.15	6.13	9.40	26.84	11.55	32.97
3179	Site 4	0.45	1.29	1.11	3.18	1.56	4.47
3180	Site 6	0.51	1.45	2.67	7.61	3.18	9.06
3181	Site 8	1.75	5.00	16.18	46.18	17.93	7 51.18
3182	Site 10	0.23	0.65	3.58	10.23	3.81	9 10.88
3183	Site 11	0.23	0.65	1.60	4.56	1.83	5.21
3184	Site 12	1.19	3.39	0.90	2.58	2.09	5.97

cc: MPC - Butte (5)
Dan Berube

Certified Gary G. O'Dell

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date June 7, 1977
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (5)
ATTN: DICK MYOTT
P O BOX 1338
BUTTE MT 59701

Sample Identification:

On April 1, 1977, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on May 2, 1977, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

ab No.	Location of Collection Station	Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
		gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
4069	Site 1	1.75	5.00	2.14	6.11	3.89	11.11
4070	Site 2	1.98	5.65	1.54	4.40	3.52	10.05
4071	Site 3	2.77	7.90	9.03	25.79	11.80	33.69
4072	Site 4*	3.56	10.16	1.41	4.03	4.97	14.19 ✓
4073	Site 6	1.86	5.32	2.60	7.44	4.46	12.76
4074	Site 8	2.60	7.42	12.55	35.84	15.15	✓7 43.26
4075	Site 10	0.28	0.81	1.62	4.61	1.90	✓9 5.42
4076	Site 11	2.99	8.55	1.81	5.18	4.80	13.73 ✓
	Site 12	Sample Badly Contaminated by Bird Droppings					

*Sample slightly contaminated with bird droppings

Certified Gary G. O'Dell

cc: MPC - Colstrip (1)
ATTN: Steve Simonds

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date June 15, 1977
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (5)
ATTN: DICK MYOTT
P O BOX 1333
BUTTE MT 59701

Sample Identification:

On May 2, 1977, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on June 1, 1977, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

Lab No.	Location of Collection Station	Total Water Soluble Solids gms. per sq. meter	Total Water Soluble Solids Tons per sq. mile	Total Insoluble Solids gms. per sq. meter	Total Insoluble Solids Tons per sq. mile	Total Solids gms. per sq. meter	Total Solids Tons per sq. mile
4626	Site 1*	10.06	28.71	4.85	13.82	14.91	✓ 42.53
4627	Site 2	2.60	7.42	2.65	7.56	5.25	14.98
4628	Site 3	No Sample Received		Forgot to set out [illegible]			✓
4629	Site 4	0.79	2.26	1.63	4.66	2.42	6.92
4630	Site 6	1.07	3.06	2.05	5.86	3.12	8.92
4631	Site 8	2.71	7.74	9.68	27.63	12.39	✓7 35.37
4632	Site 10	1.19	3.39	1.53	4.36	2.72	✓9 7.75
4633	Site 11	0.56	1.61	1.60	4.58	2.16	6.19
	Site 12	Sample badly contaminated with bird droppings					✓

*Sample slightly contaminated with bird droppings

cc: MPC - Colstrip (1)
ATTN: Steve Simonds

Certified Gary G. O'Dell

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date August 2, 1977
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (5)
ATTN: DICK MYOTT
P O BOX 1333
BUTTE MT 59701

Sample Identification:

On June 1, 1977, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on July 2, 1977, for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739 "Collection and Analysis of Dustfall."

TEST RESULTS:

		Total Water Soluble Solids		Total Insoluble Solids		Total Solids	
Lab No.	Location of Collection Station	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile	gms. per sq. meter	Tons per sq. mile
5358	Site 1	0.85	2.42	0.99	2.84	1.84	5.26
5359	Site 2	5.14	14.68	1.56	4.45	6.70	19.13
5361	Site 3	8.14	23.23	9.21	26.29	17.35	49.52
5362	Site 4	7.57	21.61	3.38	9.65	10.95	31.26
5363	Site 6	4.80	13.71	1.43	4.08	6.23	17.79 7
5364	Site 8	6.16	17.58	7.16	20.45	13.32	38.03 9
5365	Site 10	1.07	3.06	1.80	5.15	2.87	8.21
5366	Site 11	8.02	22.90	2.04	5.82	10.06	28.72
	Site 12	Sample invalid - contaminated by bird droppings					

Certified

cc: MPC - Colstrip (1)
ATTN: Steve Simonds

NTL—110

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date August 31, 1977
Job Number 64-53
Sheet 1 of 1

Report to: MONTANA POWER COMPANY (5)
ATTN: DICK MYOTT
P O BOX 1338
BUTTE MT 59701

Sample Identification:

On July 2, 1977, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on August 1, 1977 for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739, "Collection and Analysis of Dustfall."

TEST RESULTS:

Site No. :	1	2	3	4	6 7	8 9	10	11	12
Lab No. :	6062	6063	6064	6065	6066	6067	6068	6069	
Date Set Out:	7/2/77	7/2/77	7/2/77	7/2/77	7/2/77	7/2/77	7/2/77	7/2/77	7/2/7
Date Removed:	8/1/77	8/1/77	8/1/77	8/1/77	8/1/77	8/1/77	8/1/77	8/1/77	8/1/7
Component, tons/sq. mile									
Total Settleable Particulates	10.90	5.95	31.08	8.97	13.90*	56.13*	10.29	10.32	
Benzene Solubles	-0.01	-0.01	0.03	-0.01	-0.01	-0.01	-0.01	0.03	
Combustibles & Volatile Particulates other than Benzene Solubles	3.13	2.29	6.31	2.66	4.84	13.90	2.26	3.63	
Total Insoluble Settleable Particulates	6.87	4.66	27.53	5.74	9.71	51.13	8.84	6.61	
Total Inorganic Particulates	10.90	5.95	31.05	8.97	13.90	56.13	10.29	10.29	
Montana Dept. of Health & Environmental Sciences Insoluble Particulate Color Code Number	7	6	9	6	6	9	6	6	

*Sample invalid - contaminated with bird droppings.

Certified Gary G. O'Dell

cc: MPC - Colstrip (1)
Steve Simonds

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date October 11, 1977
Job Number 64-53
Sheet 1 of 2

Report to: Montana Power Company (5)
ATTN: Dick Myott
P.O. Box 1338
Butte, Montana 59701

Sample Identification:

On August 1, 1977, the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on September 1, 1977 for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739, "Collection and Analysis of Dustfall."

TEST RESULTS:

Site No. :	1	2	3	4 *	6	8 *
b No. :	6749	6750	6751	6752	6753	6754
te Set Out:	8-1-77	8-1-77	8-1-77	8-1-77	8-1-77	8-1-77
ate Removed:	9-1-77	9-1-77	9-1-77	9-1-77	9-1-77	9-1-77
COMPONENT, tons/sq. mile)						
Total Settleable Particulates	16.45	9.38	26.86	17.60	13.49 ✓	~~57.60~~ ✓
Benzene Solubles	-0.01	-0.01	-0.01	-0.01	0.10	0.08
Combustibles & Volatile Particulates other than Benzene Solubles	3.19	1.26	7.42	6.74	5.40	15.15
otal Insoluble Settleable Particulates	6.13	4.06	19.28	8.57	8.65	49.54
otal Inorganic Particulates	16.45	9.38	26.86	17.60	13.39	57.52
ontana Dept. of Health & Environmental Sciences Insoluble Particulate Color Code Number	6	6	6	11	6	9

Dustfall Analysis
Colstrip Project

Montana Power Company
Butte, Montana 59701

October 11, 1977
Job No. 64-53
Sheet 2 of 2

Site No. :	10	11	12
Lab No. :	6755	6756	6757
Date Set Out:	8-1-77	8-1-77	8-1-77
Date Removed:	9-1-77	9-1-77	9-1-77
(COMPONENT, tons/sq. mile)			
Total Settleable Particulates	7.96	7.74	14.45
Benzene Solubles	-0.01	-0.01	-0.01
Combustibles & Volatile Particulates other than Benzene Solubles	3.44	4.52	8.13
Total Insoluble Settleable Particulates	6.19	6.45	9.77
Total Inorganic Particulates	7.96	7.74	14.45
Montana Dept. of Health & Environmental Sciences Insoluble Particulate Color Code Number	7	7	7

* Sample contaminated with insects.

Certified Jay C. [illegible]

cc: MPC - Colstrip (1)
Steve Simonds

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Project

Date November 29, 1977
Job Number 64-53
Sheet 1 of 2

Report to: MONTANA POWER COMPANY (5)
ATTN: DICK MYOTT
P O BOX 1338
BUTTE MT 59701

Sample Identification:

On September 30, 1977 the following dustfall collectors were prepared and set out by your personnel at the following locations. They were picked up on October 31, 1977 for analysis of dustfall. The samples were prepared and analyzed as per ASTM D1739, "Collection and Analysis of Dustfall."

TEST RESULTS:

Site No. :	1	2	3	4	6
Lab No. :	8291	8292	8293	8294	8295
Date Set Out :	9/30/77	9/30/77	9/30/77	9/30/77	9/30/77
Date Removed :	10/31/77	10/31/77	10/31/77	10/31/77	10/31/77
Component, tons/sq. mile					
Total Settleable Particulates	10.40	11.95	27.44	6.43	7.57
Benzene Solubles	0.08	0.16	0.15	0.15	0.08
Combustibles & Volatile Particulates other than Benzene Solubles	1.16	1.03	3.36	0.89	1.18
Total Insolubles Settleable Particulates	3.95	3.40	14.21	2.40	2.89
Total Inorganic Particulates	10.32	11.79	27.29	6.28	7.49
Montana Dept. of Health & Environmental Sciences Insoluble Particulate Color Code Number	2	5	6	11	5

Northern Testing Laboratories, Inc.

Dustfall Analysis

Montana Power Co.
Butte, MT

November 29, 1977
Job No. 64-53
Sheet 2 of 2

Site No. :	8	10	11	12
Lab No. :	8296	8297	8298	8299
Date Set Out :	9/30/77	9/30/77	9/30/77	9/30/77
Date Removed :	10/31/77	10/31/77	10/31/77	10/31/77
Component, tons/sq. mile				
Total Settleable Particulates	35.04	4.50	3.71	4.22
Benzene Solubles	0.15	0.13	0.10	0.08
Combustibles & Volatile Particulates other than Benzene Solubles	7.45	0.77	0.87	0.98
Total Insoluble Settleable Particulates	28.10	2.24	2.10	2.61
Total Inorganic Particulates	34.89	4.37	3.61	4.14
Montana Dept. of Health & Environmental Sciences Insoluble Particulate Color Code Number	7	5	2	11

Certified ______________________________

cc: MPC - Colstrip (1)
Steve Simonds

NORTHERN TESTING LABORATORIES

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Report of: Particulate Matter Collected on High Volume Air Sampler Colstrip Stie #3

Date February 21, 1972
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (3)
Post Office Box 1338
Butte, Montana
Attention: Mr. Dan Berube, Engineer

Sample Identification:

Summarized below are the particulate matter results which were collected on a high volume air sampler on the dates shown. The results cover approximately a twenty-four hour period.

TEST RESULTS:

Lab	Dates Covered	Temperature F Average	Barometric Pressure Inches of Hg (Average)	Relative Humidity, % (Average)	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per cubic meter of air
22097	1-18-72 1-19-72	N/R	N/R	N/R	N/R	4.84
22098	1-24-72 1-25-72	N/R	N/R	N/R	N/R	4.15
22267	1-30-72 1-31-72	N/R	N/R	N/R	N/R	37.79*
22268	2-5-72 2-6-72	N/R	N/R	N/R	N/R	5.80

Site 3

ROUTING	INIT
LABRIE	RJL
BERU	
THO	
[illegible]	
Anderson	

* Filter may have contained moisture before field tests.

Note: Temperatures and pressures were not recorded by Montana Power Company personnel and values shown are not corrected for air density.

cc: Mr. Joel Bowers
Post Office Box 419
Colstrip, Montana

Certified

MPC
H-VOL

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Report of: Particulate Matter collected
on High Volume Air Sampler
Colstrip Site #3

Date March 24, 1972
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (3)
P. O. Box 1338
Butte, Montana 59701
ATTENTION: Mr. Dan Berube, Engineer

Sample Identification.

Summarized below are the particulate matter results which were collected on a high volume air sampler on the dates shown. The results cover approximately a twenty-four hour period.

TEST RESULTS:

Lab	Dates Covered	Temperature °F Average	Barometric Pressure Inches of Hg (Average)	Relative Humidity,% (Average)	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per cubic meter of air
22332	2/11/72 2/12/72	37	901	50	SW @ 13 mph	10.20
22333	2/17/72 2/18/72	32	904	70	SE @ 6 mph	21.93
22334	2/23/72 2/24/72	14	996	75	NW @ 5 mph	22.44
22444	2/29/72 3/01/72	11	1000	70	NW @ 6 mph	29.70
22445	3/06/72 3/07/72	27	1002	64	NW @ 13 mph	33.00
22586	3/12/72 3/13/72	52	1003	44	SW @ 6 mph	50.90

Certified

cc: Mr. Joel Bowers (1)

NORTHERN TESTING LABORATORIES

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

REVISED: May 26, 1972
REVISED: May 17, 1972
Date April 28, 1972
Job Number 64-53
Sheet 1 of 1

Report of: Particulate Matter Collected on
High Volume Air Sampler
Colstrip Site #3

Report to: The Montana Power Company (3)
P. O. Box 1338
Butte, Montana 59701
ATTENTION: Mr. Dan Berube

Sample Identification:

Summarized below are the particulate matter results which were collected on a high volume air sampler on the dates shown. The results cover approximately a twenty-four hour period.

TEST RESULTS:

Lab No.	Dates Covered	Temperature F Average	Barometric Pressure Millibars (Average)	Relative Humidity,% (Average)	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per cubic meter of air
[illegible]0	3-18-72 3-19-72	49	894	58	NW @ 6mph	166.15
22461	3-24-72 3-25-72	40	894	51	S @ 9mph	56.71
22772	3-30-72 3-31-72	32	903	66	NW @ 7mph	64.64
22773	4-05-72 4-06-72	56	890	53	SW @ 9mph	80.85
22955	4-11-72 4-12-72	49	887	61	W @ 18mph 0.04'' ppt.	41.66
23031	4-17-72 4-18-72	36	902	70	SW @ 8 mph 0.09'' ppt.	61.16
23197	4-23-72 4-24-72	42	906	46	SE @ 17mph 0.0'' ppt	70.28
23288	4-29-72 4-30-72	39	900	78	N/R 0.38'' ppt.	49.99
23338	5-05-72 5-06-72	40	909	65	NE @ 12mph ''T'' ppt.	36.52

Certified

cc: Mr. Joel Bowers (1)

NORTHERN TESTING LABORATORIES

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

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Revised: July 3, 1972
Revised: June 14, 1972
Date June 1, 1972
Job Number 64-53
Sheet 1 of 1

eport of: Particulate Matter Collected on
High Volume Air Sampler
Colstrip Site #3

eport to: The Montana Power Company (3)
Post Office Box 1338
Butte, Montana 59701
ATTENTION: Mr. Dan Berube

Sample Identification:

Summarized below are the particulate matter results which were collected on a high vollume air sampler on the dates shown. The results cover approximately a twenty-four hour period.

TEST RESULTS:

o.	Dates Covered	Temperature °F. Average	Barometric Pressure Millibars (Average)	Relative Humidity, % (Average)	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per cubic meter of air
	5-11-72 5-12-72	47	905	70	NW @ 12 mph 0.34" ppt.	46.24
	5-17-72 5-18-72	68	893	44	NW @ 11 mph 0" ppt.	78.61
	5-23-72 5-24-72	57	899	58	S @ 8 mph T" ppt.	65.50
	5-30-72 5-31-72	66	900	48	SW @ 5 mph 0" ppt.	77.78
	6-4-72 6-5-72	66	908	44	SE-SW @ 7 mph	105.43
	6-10-72 6-11-72	72	896	52	N-NW @ 10 mph	66.62
	6-16-72 6-17-72	70	889	51	N-NW & SE @ 8 mph	77.28

Montana Power Co. - Colstrip (1)

Certified

NORTHERN TESTING LABORATORIES

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

REVISED: September 2, 1972
REVISED: August 23, 1972
REVISED: August 19, 1972
REVISED: July 31, 1972
Date July 19, 1972
Job Number 64-53
Sheet 1 of 1

Report of: Particulate Matter Collected on
High Volume Air Sampler
Colstrip Site #3

Report to: The Montana Power Company (3)
Post Office Box 1338
Butte, Montana 59701
Attention: Mr. Dan Berube

Sample Identification:

Summarized below are the particulate matter results which were collected on a high volume air sampler on the dates shown. The results cover approximately a twenty-four hour period.

TEST RESULTS:

Lab No.	Dates Covered	Temperature F Average	Barometric Pressure Millibars (Average)	Relative Humidity,% (Average)	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per cubic meter of air
24001	6-22-72 6-23-72	72	894	56	Direction not constant @ 14mph	77.52
24002	6-28-72 6-29-72	73	904	41	West @ 9mph	78.64
24091	7-04-72 7-05-72	64	908	43	SE @ 6mph	96.70
24154	7-10-72 7-11-72	68	902	45	N @ 8 mph	87.00
24254	7-16-72 7-17-72	62	905	47	NW @ 12 mph	64.94
24332	7-22-72 7-23-72	66	905	41	W-SW @ 10 mph	52.84
24384	7-28-72 7-29-72	77	903	39	W-NW @ 11 mph	80.10
24385	7-29-72 7-30-72	73	901	42	Direction not constant @ 12 mph	91.67
24449	8-3-72 8-4-72	63	906	63	SE @ 6 mph	127.03
[illegible]	8-9-72 8-10-72	78	901	34	W-SW @ 16 mph	105.22
24666	8-15-72 8-16-72	74	903	55	Direction not constant @ 8 mph	86.03

cc: Montana Power Co. - Colstrip (1)

Certified

NORTHERN TESTING LABORATORIES

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

REVISED: November 10, 1972
REVISED: September 30, 1972
REVISED: September 21, 1972

Report of: Particulate Matter Collected on
High Volume Air Sampler
Colstrip Site #3

Date September 8, 1972
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (3)
Post Office Box 1338
Butte, Montana 59701
Attention: Mr. Dan Berube

Sample Identification:

Summarized below are the particulate matter results which were collected on a high volume air sampler on the dates shown. The results cover approximately a twenty-four hour period.

TEST RESULTS:

Lab No.	Dates Covered	Temperature F Average	Barometric Pressure Millibars (Average)	Relative Humidity,% (Average)	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per cubic meter of air
730	8-21-72 8-22-72	64	906	61	Direction not constant @ 6 mph	38.38
24839	8-27-72 8-28-72	71	904	44	Direction not constant @ 6 mph	27.55
25027	9-02-72 9-03-72	59	905	56	NW-SW @ 6 mph	16.59
25337	9-08-72 9-09-72	69	898	33	SE-SW @ 18 mph	32.77
25558	9-14-72 9-15-72	57	902	46	NW-SW @ 12 mph	79.62
25559	9-20-72 9-21-72	48	910	48	NW-S @ 11 mph	81.30
25713	9-26-72 9-27-72	40	898	75	SE-NW @ 14 mph	32.57
25863	10-02-72 10-03-72	51	905	61	NW @ 8 mph	35.31
26047	10-08-72 10-09-72	58	895	51	SE-SW @ 13 mph	54.86
26092	10-14-72 10-15-72	38	907	72	Direction not not constant @ 8 mph	23.80

cc: Montana Power Company (1)
Colstrip, Montana

Certified: ______________________

NORTHERN TESTING LABORATORIES

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

REVISED: December 27, 1972
Date November 17, 1972
Job Number 64-53
Sheet 1 of 1

Report of: Particulate Matter Collected on
High Volume Air Sampler
Colstrip Site #3

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, Montana 59323

Sample Identification:

Summarized below are the particulate matter results which were collected on a high volume air sampler on the dates shown. The results cover approximately a twenty-four hour period.

TEST RESULTS:

Lab No.	Dates Covered	Temperature °F Average	Barometric Pressure Inches of Hg (Average)	Relative Humidity,% (Average)	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per cubic meter of air
26220	10-21-72 to 10-22-72	40	899	68	6 mph SW	114.8
[illegible]21	10-26-72 to 10-27-72	33	901	74	13 mph NW .24" ppt.	22.5
26222	11-01-72 to 11-02-72	38	898	75	9 mph SW	38.4
26286	11-07-72 to 11-08-72	35	899	67	8 mph SW	104.2
26645	11-13-72 to 11-14-72	30	899	75	SW @ 8 mph	87.8
26646	11-19-72 to 11-20-72	22	909	93	NW-SE @ 5 mph	107.6
26681	11-25-72 to 11-26-72	35	893	58	NW-SW @ 22 mph	72.4
26825	12-01-72 to 12-02-72	17	898	71	NW @ 18 mph	32.9
26826	12-07-72 to 12-08-72	-19	906	77	Direction not constant @ 2 mph	20.0

12-13 to
12-14 see bottom of next page

cc: The Montana Power Co. - Butte (3)
Attention: Mr. Dan Berube

Certified

NTL-110

Revised: May 3, 1973

Report of:	Particulate Matter Collected on High Volume Air Sampler Colstrip Air Monitoring	Date	February 13, 1973
		Job Number	64-53
		Sheet	1 of 1

Report to:
The Montana Power Company (1)
P. O. Box 419
Colstrip, Montana 59323

Sample Identification:

Summarized below are the particulate matter results which were collected on a high volume air sampler on the dates shown. The results cover approximately a twenty-four hour period.

TEST RESULTS:

Lab No.	Site No.	Dates Covered	Temperature °F Average	Barometric Pressure Inches of Hg (Average)	Relative Humidity,% (Average)	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per cubic meter of air
26975	1	12-19-72 to 12-20-72	42	900	54	NW @ 19 mph	11.93
6	2	12-19-72 to 12-20-72	42	900	54	NW @ 19 mph	11.29
26977	3	12-19-72 to 12-20-72	42	900	54	NW @ 19 mph	27.51
26978	3	12-25-72 to 12-26-72	40	902	41	WSW @ 23 mph	28.91
26979	2	12-25-72 to 12-26-72	40	902	41	WSW @ 23 mph	14.52
26980	1	12-25-72 to 12-26-72	40	902	41	WSW @ 23 mph	10.90
27047	2	12-31-72 to 1-01-73	15	908	67	WSW @ 14 mph	28.46
27048	3	12-31-72 to 1-01-73	15	908	67	WSW @ 14 mph	31.77
27049	1	12-31-72 to 1-01-73	15	908	67	WSW @ 14 mph	12.76
26974	3	12-13-72 to 12-14-72	12	904	64	WSW @ 14 mph	22.04

Certified Leland P.

The Montana Power Company (3)
Butte, Mont.
Attn: Dan Berube

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Revised: May 3, 1973

Report of: Particulate Matter Collected on
High Volume Air Sampler
Colstrip Project

Date January 29, 1973
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, Montana 59323

Sample Identification:

Summarized below are the particulate matter results which were collected on a high volume air sampler on the dates shown. The results cover approximately a twenty-four hour period.

TEST RESULTS:

	Site No.	Dates Covered	Temperature of Average	Barometric Pressure Millibars	Relative Humidity,% (Average)	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per cubic meter of air
[illegible]	1	1-06-73 to 1-07-73	-7	915	76	NW @ 2 mph	13.48
41	2	1-06-73 to 1-07-73	-7	915	76	NW @ 2 mph	14.50
42	3	1-06-73 to 1-07-73	-7	915	76	NW @ 2 mph	49.04
43	1	1-12-73 to 1-13-73	40	902	58	W-WNW @ 19 mph	13.91
44	2	1-12-73 to 1-13-73	40	902	58	W-WNW @ 19 mph	9.31
45	3	1-12-73 to 1-13-73	40	902	58	W-WNW @ 19 mph	22.18

Certified Leland J. Walker

Power Company (3)
ttn: Mr. Dan Berube

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Revised: May 3, 1973

Report of: Particulate Matter Collected on
High Volume Air Sampler
Colstrip Air Monitoring

Date March 23, 1973
Job Number 64-53
Sheet 1 of 2

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, Montana 59323

Sample Identification:

Summarized below are the particulate matter results which were collected on a high volume air sampler on the dates shown. The results cover approximately a twenty-four hour period.

TEST RESULTS:

Lab No.	Site No.	Dates Covered	Temperature °F Average	Barometric Pressure Inches of Hg (Average)	Relative Humidity, % (Average)	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per cubic meter of air
7315	1	1-18-73 to 1-19-73	28	894	86	SW & NW @ 8 mph	15.42
27316	2	1-18-73 to 1-19-73	28	894	86	SW & NW @ 8 mph	9.14
27317	3	1-18-73 to 1-19-73	28	894	86	SW & NW @ 8 mph	40.05
27515	1	1-24-73 to 1-25-73	33	901	69	NW - SW @ 5 mph	7.26
27516	2	1-24-73 to 1-25-73	33	901	69	NW - SW @ 5 mph	5.13
27517	3	1-24-73 to 1-25-73	33	901	69	NW - SW @ 5 mph	No Result-Filter Paper Torn
27518	1	1-30-73 to 1-31-73	29	894	73	NW - SW @ 12 mph	8.57
27519	2	1-30-73 to 1-31-73	29	894	73	NW - SW @ 12 mph	11.09
27520	3	1-30-73 to 1-31-73	29	894	73	NW - SW @ 12 mph	18.09
27725	1	2-05-73 to 2-06-73	6	917	74	NE - NW @ 7 mph	10.24
27726	2	2-05-73 to 2-06-73	6	917	74	NE - NW @ 7 mph	9.33

continued...

Northern Testing Laboratories, Inc.

Particulate Matter Collected on
High Volume Air Sampler
Colstrip Air Monitoring

Revised: May 3, 1973
March 23, 1973
Job No. 64-53
Sheet 2 of 2

The Montana Power Company
Colstrip, Montana 59323

Lab No.	Site No.	Dates Covered	Temperature °F Average	Barometric Pressure Inches of Hg (Average)	Relative Humidity,% (Average)	Wind Velocity (mph) and Direction	Particulate Matter Microgtams per cubic meter of air
27727	3	2-05-73 to 2-06-73	6	917	74	NE - NW @ 7 mph	37.80
27894	1	2-11-73 to 2-12-73	23	894	80	N-SSE @ 12 mph	13.35
27895	2	2-11-73 to 2-12-73	23	894	80	N-SSE @ 12 mph	7.71
27896	3	2-11-73 to 2-12-73	23	894	80	N-SSE @ 12 mph	66.91
28157	1	2-23-73 to 2-24-73	31	904	76	N - NE @ 5 mph	26.14
28158	2	2-23-73 to 2-24-73	31	904	76	N - NE @ 5 mph	15.61
28159	3	2-23-73 to 2-24-73	31	904	76	N - NE @ 5 mph	90.07
28160	1	3-01-73 to 3-02-73	40	902	52	West @ 13 mph	8.65
28161	2	3-01-73 to 3-02-73	40	902	52	West @ 13 mph	31.14
28162	3	3-01-73 to 3-02-73	40	902	52	West @ 13 mph	98.08

Certified Leland J. Volker

cc: The Montana Power Company (3)
Butte, Montana
Attention: Dan Berube

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Revised: May 3, 1973

Report of:	Particulate Matter Collected on High Volume Air Sampler Colstrip Air Monitoring	Date	March 30, 1973
		Job Number	64-53
		Sheet	1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, Montana 59323

Sample Identification:

Summarized below are the particulate matter results which were collected on a high volume air sampler on the dates shown. The results cover approximately a twenty-four hour period.

TEST RESULTS:

Lab No.	Site No.	Dates Covered	Temperature °F Average	Barometric Pressure Inches of Hg (Average)	Relative Humidity, % (Average)	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per cubic meter of air
27897	1	2-17-73 to 2-18-73	34	902	72	NW @ 14mph	15.24
27898	2	2-17-73 to 2-18-73	34	902	72	NW @ 14 mph	15.49
27899	3	2-17-73 to 2-18-73	34	902	72	NW @ 14 mph	50.47
28300	1	3-07-73 to 3-08-73	32	907	63	SE @ 10 mph	17.20
28301	2	3-07-73 to 3-08-73	32	907	63	SE @ 10 mph	15.10
28302	3	3-07-73 to 3-08-73	32	907	63	SE @ 10 mph	94.13
28303	1	3-13-73 to 3-14-73	32	899	71	NW @ 25 mph	11.73
28304	2	3-13-73 to 3-14-73	32	899	71	NW @ 25 mph	8.62
28305	3	3-13-73 to 3-14-73	32	899	71	NW @ 25 mph	33.81

cc: The Montana Power Co. (3)
Butte, Montana
Attn: Mr. Dan Berube

Certified

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Report of: Particulate Matter Collected on
High Volume Air Sampler
Colstrip Air Monitoring

Date May 3, 1973
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, Montana 59323

Sample Identification:

Summarized below are the particulate matter results which were collected on a high volume air sampler on the dates shown. The results cover approximately a twenty-four hour period.

TEST RESULTS

Lab No.	Site No.	Dates Covered	Temperature ° F Average	Barometric Pressure Inches of Hg (Average)	Reaative Humidity,% (Average)	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per cubic meter of ai
28355	1	3-19-73 to 3-20-73	41	899	.48	SSE @ 11 mph	17.45
28356	3*	3-19-73 to 3-20-73	41	899	.48	SSE @ 11 mph	75.41
28357	1	3-25-73 to 3-26-73	41	896	.50	SSW @ 9 mph	9.30
28358	2	3-25-73 to 3-26-73	41	896	.50	SSW @ 9 mph	8.55
28359	3	3-25-73 to 3-26-73	41	896	.50	SSW @ 9 mph	79.94

* Site 2 - Malfunction of HVAS Sampler

cc: MPC - Butte - Attn: Dan Berube (3)

Certified Leland J. Walker

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Report of: Particulate Matter Collected
on High Volume Air Sampler
Colstrip Air Monitoring

Date May 26, 1973
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, Montana 59323

Sample Identification:

Summarized below are the particulate matter results which were collected on a high volume air sampler on the dates shown. The results cover approximately a twenty-four hour period.

TEST RESULTS:

Lab No.	Dates Covered	Temperature F Average	Barometric Pressure Inches of Hg (Average)	Relative Humidity,% (Average)	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per cubic meter of air
28748 Site 1	3-31-73- 4-01-73	42	902	54	Direction not constant @ 9 mph	31.54
28747 Site 2	3-31-73- 4-01-73	42	902	54	Direction not constant @ 9 mph	26.10
28749 Site 3	3-31-73- 4-01-73	42	902	54	Direction not constant @ 9 mph	153.88
28751 Site 1	4-06-73- 4-07-73	25	915	80	N-NW @ 30 mph	24.25
28752 Site 2	4-06-73 4-07-73	25	915	80	N-NW @ 30 mph	21.34
28750 Site 3	4-07-73- 4-08-73	21	912	79	Direction not Constant @ 13 mph	67.0

Butte, MT Certified

NTL-110

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Report of: Particulate Matter Collected
on High Volume Air Sampler
Colstrip Air Monitoring

Date June 26, 1973
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, MT 59323

Sample Identification:

Summarized below are the particulate matter results which were collected on a high volume air sampler on the dates shown. The results cover approximately a twenty-four hour period.

TEST RESULTS:

ab o.	Dates Covered	Temperature °F Average	Barometric Pressure Inches of Hg (Average)	Relative Humidity, % (Average)	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per cubic meter of air
9270 ite 1	4-12-73 4-13-73	49	899	51	n/a	40.78
29[illegible]1 Site 2	4-12-73 4-13-73	49	899	51	n/a	55.00
29269 Site 3	4-12-73 4-13-73	49	899	51	n/a	128.81
29274 Site 1	4-18-73 4-19-73	33	892	92	NW at 24 mph	33.02
29273 Site 2	4-18-73 4-19-73	33	892	92	"	33.97
29272 Site 3	4-18-73 4-19-73	33	892	92	"	41.24
29276 Site 1	4-24-73 4-25-73	40	908	80	Direction not constant at 5 mph	28.65
29277 Site 2	4-24-73 4-25-73	40	908	80	"	38.16
29275 Site 3	4-24-73 4-25-73	40	908	80	"	68.90

Montana Power Co., Butte, MT (3)
ATTN: Dan Derube

Certified

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Report of:	Particulate Matter Collected on High Volume Air Sampler Colstrip Air Monitoring	Date	July 5, 1973
		Job Number	64-53
		Sheet	1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, Montana 59323

Sample Identification:

Summarized below are the particulate matter results which were collected on a high volume air sampler on the dates shown. The results cover approximately a twenty-four hour period.

TEST RESULTS:

ab o.	Dates Covered	Temperature F Average	Barometric Pressure Inches of Hg (Average)	Relative Humidity,% (Average)	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per cubic meter of air
9279 [illegible] 1	4-30-73 18:04 5-1-73 19:05	44	908	77	Direction not Constant at 6mph	8.86
80 te 2	4-30-73 18:33 5-01-73 19:39	44	908	77	Direction not constant at 6mph	1.96
278 te 3	4-30-73 17:34 5-01-73 18:45	44	908	77	Direction not constant at 6mph	45.97
282 te 1	5-06-73 17:30 5-07-73 17:45	51	902	57	Direction not constant at 14mph	24.23
281 te 2	5-06-73 18:09 5-07-73 18:16	51	902	57	Direction not constant at 14 mph	27.06
283 te 3	5-06-73 17:16 5-07-73 17:25	51	902	57	Direction not constant at 14mph	104.33
285 te 1	5-12-73 20:19 5-13-73 20:34	45	919	59	West @ 5mph	29.42
286 te 2	5-12-73 20:48 5-13-73 21:08	45	919	59	West @ 5mph	31.23
284 te 3	5-12-73 07:50 5-13-73 20:00	45	919	59	West @ 5mph	117.79

Certified Leland J. Walker

cc: Montana Power Company - Butte, MT (3)
Attention: Dan Berube

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Report of: Particulate Matter Collected on
High Volume Air Sampler
Colstrip Air Monitoring

Date July 9, 1973
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, MT 59323

Sample Identification:

Summarized below are the particulate matter results which were collected on a high volume air sampler on the dates shown. The results cover approximately a twenty-four hour period.

TEST RESULTS:

ab o.	Dates Covered	Temperature °F, Average	Barometric Pressure Inches of Ng (Average)	Relative Humidity, % (Average)	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per cubic meter of air
9969 ite 1	5-24-73 5-25-73	49	893	69	Southeast at 15 mph	8.45
99[illegible] i[illegible] 2	5-24-73 5-25-73	49	893	69	Southeast at 15 mph	4.27
9971 ite 3	5-24-73 5-25-73	49	893	69	Southeast at at 15 mph	60.40

: Montana Power Co., Butte (3)
Attention: Dan Berube

Certified Leland J. Walker

Report of: Particulate Matter Collected
on High Volume Air Sampler
Colstrip Air Monitoring

Date July 24, 1973
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, MT 59323

Sample Identification:

Summarized below are the particulate mater results which were collected on a high volume air sampler on the dates shown. The results cover approximately a twenty-four hour period,

TEST RESULTS:

b .	Dates Covered	Temperature °F Average	Barometric Pressure Inches of Mg (Average)	Relative Humidity, % (Average)	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per cubic meter of air
[illegible] [illegible]	6-11-73 6-12-73	62	906	52	South south-east at 10 mph	28.21
081 te 2	6-11-73 6-12-73	62	906	52	South south-east at 10 mph	32.17
082 te 3	6-11-73 6-12-73	62	906	52	South south-east at 10 mph	134.63

: Montana Power Company, Butte (3)
Attn: Mr. Dan Berube

Certified

NTL—110

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Report of: Particulate Matter Collected
on High Volume Air Sampler
Colstrip Air Monitoring

Date August 30, 197[illegible]
Job Number 64-5[illegible]
Sheet 1 of 2

Report to: The Montana Power Company (1)
Post Office Box 419
Colstrip, Montana 59323

Sample Identification:

Summarized below are the particulate matter results which were collected on a high volume air sampler on the dates shown. The results cover approximately a twenty-four hour period.

TEST RESULTS:

Lab No.	Dates Covered	Temperature °F Average	Barometric Pressure Inches of Mg (Average)	Relative Humidity, % (Average)	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per cubic meter of air
30[illegible] Site 1	6-17-73 6-18-73	42	899	84	Northwest at 37 mph	30.61
30531 Site 2	6-17-73 6-18-73	42	899	84	Northwest at 37 mph	26.00
30532 Site 3	6-17-73 6-18-73	42	899	84	Northwest at 37 mph	41.16
30533 Site 1	6-29-73 6-30-73	67	899	67	Not constant at 9 mph	32.45
30534 Site 2	6-29-73 6-30-73	67	899	67	Not constant at 9 mph	27.41
30535 Site 3	6-29-73 6-30-73	67	899	67	Not constant at 9 mph	43.83
30536 Site 1	7-05-73 7-06-73	74	895	48	Not constant at 7 mph	26.10
30537 Site 2	7-05-73 7-06-73	74	895	48	Not constant at 7 mph	22.79
30[illegible] Site [illegible]	7-05-73 7-06-73	74	895	48	Not constant at 7 mph	72.08

continued...

Northern Testing Laboratories, Inc.

Particulate Matter Collected
on High Volume Air Sampler
Colstrip Air Monitoring

August 30, 1973
Job No. 64-53
Sheet 2 of 2

The Montana Power Company
Colstrip, Montana

ab o.	Dates Covered	Temperature °F Average	Barometric Pressure Inches of Mg (Average)	Relative Humidity, % (Average)	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per cubic meter of air
0539 ite 1	7-11-73 7-12-73	72	906	34	Not constant at 11 mph	11.37
30540 ite 2	7-11-73 7-12-73	72	906	34	Not constant at 11 mph	11.30
30541 ite 3	7-11-73 7-12-73	72	906	34	Not constant at 11 mph	45.45
[illegible]42 ite 1	7-17-73 7-18-73	65	910	55	Southeast at 10 mph	14.00
30543 ite 2	7-17-73 7-18-73	65	910	55	Southeast at 10 mph	19.01
30544 Site 3	7-17-73 7-18-73	65	910	55	Southeast at 10 mph	46.70

cc: Montana Power Company (3)
Butte, Montana
Attention: Dan Berube

Certified ______________________

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

Report of: Particulate Matter Collected
on High Volume Air Sampler
Colstrip Air Monitoring

Date November 29, 1973
Job Number 64-53
Sheet 1 of 2

Report to: The Montana Power Company (1)
Post Office Box 419
Colstrip, Montana 59323

Sample Identification:

Summarized below are the particulate matter results which were collected on a high volume air sampler on the dates shown. The results cover approximately a twenty-four hour period.

TEST RESULTS:

o . . .	Dates Covered	Temperature °F Average	Barometric Pressure Inches of Mg (Average)	Relative Humidity,% (Average)	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per cubic meter of air
996 [illegible]	7-23-73 7-24-73	60	907	75	W at 12 mph	11.05
997 te 3	7-23-73 7-24-73	60	907	75	W at 12 mph	89.82
998 te 1	7-29-73 7-30-73	67	910	49	Direction not constant at 7 mph	12.81
999 te 2	7-29-73 7-30-73	67	910	49	Direction not constant at 7 mph	12.83
000 te 3	7-29-73 7-30-73	67	910	49	Direction not constant at 7 mph	85.27
001 te 1	8-04-73 8-05-73	74	897	50	NW at 13 mph	16.39
002 te 2	8-04-73 8-05-73	74	897	50	NW at 13 mph	16.28
003 te 3	8-04-73 8-05-73	74	897	50	NW at 13 mph	96.60
004 t 2	8-16-73 8-17-73	79	901	29	Direction not constant at 9 mph	20.10

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Northern Testing Laboratories, Inc.

Particulate Matter Collected
on High Volume Air Sampler
Colstrip Air Monitoring

November 29, 1973
Job No. 64-53
Sheet 2 of 2

The Montana Power Company
Colstrip, Montana 59323

TEST RESULTS:

b .	Dates Covered	Temperature °F Average	Barometric Pressure Inches of Mg (Average)	Relative Humidity,% (Average)	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per cubic meter of air
005 te 1	8-22-73 8-23-73	72	898	57	Direction not constant at 18 mph	11.86
006 te 1	8-28-73 8-29-73	64	906	43	W at 11 mph	10.39
007 te 2	8-28-73 8-29-73	64	906	43	W at 11 mph	19.21
787	9-04-73 9-05-73	59	913	60	Direction not available at 7 mph	Filter Torn
788 te 2	9-04-73 9-05-73	59	913	60	Direction not available at 7 mph	Filter Torn
789 te 3	9-04-73 9-05-73	59	913	60	Direction not available at 7 mph	63.94
790 te 1	9-09-73 9-10-73	64	912	65	Direction not constant at 9 mph	12.72
791 te 2	9-09-73 9-10-73	64	912	65	Direction not constant at 9 mph	13.89
792 te 3	9-09-73 9-10-73	64	912	65	Direction not constant at 9 mph	63.52
793 te 1	9-15-73 9-16-73	41	915	78	E at 3 mph	11.83
794 te 2	9-15-73 9-16-73	41	915	78	E at 3 mph	12.33
795 3	9-15-73 9-16-73	41	915	78	E at 3 mph	46.49

cc: Montana Power Company, Butte (3)
Attention: Dan Berube

Certified Leland J.

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

Revised: November 26, 1974
Date January 24, 1974
Job Number 64-53
Sheet 1 of 2

Report of: Water soluble sulfate collected on
High Volume Air Sample Filters
Colstrip Air Monitoring

Report to: The Montana Power Company (1)
Post Office Box 419
Colstrip, MT 59323

Sample Identification

Summarized below are the water soluble sulfate results which were collected on a high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U. S. Public Health Standard procedures. The results cover approximately a twenty-four hour period.

TEST RESULTS

Lab No.	Location	Dates Covered	Wind velocity (mph) and direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/Cubic Meter, Air
31796	site 1	9/21 - 9/22/73	West @ 13 mph	10.17	2.45
31797	site 2	9/21 - 9/22/73	West @ 13 mph	6.72	1.63
31798	site 3	9/21 - 9/22/73	West @ 13 mph	63.43	4.37
31799	site 1	9/26 - 9/27/73	Not available	10.08	5.17
31800	site 2	9/26 - 9/27/73	Not available	12.33	3.59
31801	site 3	9/26 - 9/27/73	Not available	76.53	5.71
32784	site 1	10/3 - 10/4/73	West @ 10 mph	16.61	2.60
32785	site 2	10/3 - 10/4/73	West @ 10 mph	18.57	3.24
32786	site 3	10/3 - 10/4/73	West @ 10 mph	96.48	4.78
32787	site 1	10/9 - 10/10/73	Not available	7.38	1.32
32788	site 2	10/9 - 10/10/73	Not available	3.02	2.51
32789	site 3	10/9 - 10/10/73	Not available	48.57	6.91
32790	site 1	10/15 - 10/16/73	Not available	11.74	1.63
32791	site 2	10/15 - 10/16/73	Not available	11.77	0.90
32792	site 3	10/15 - 10/16/73	Not available	36.16	3.28
32793	site 1	10/21 - 10/22/73	Not available	29.76	2.79
32794	site 2	10/21 - 10/22/73	Not available	14.92	2.49
32795	site 3	10/21 - 10/22/73	Not available	91.47	7.00
32796	site 1	10/27 - 10/28/73	Not available	11.86	1.38
32797	site 2	10/27 - 10/28/73	Not available	12.86	1.17
32798	site 3	10/27 - 10/28/73	Not available	189.82	5.74

continued. . .

SO_4 Start

Northern Testing Laboratories, Inc.

Water soluble sulfate collected on
High Volume Air Sample Filters
Colstrip Air Monitoring

Revised: November 26, 1974
January 24, 1974
Job No. 64-53
Sheet 2 of 2

The Montana Power Company
Colstrip, MT 59323

ab No.	Location	Dates Covered	Wind velocity (mph) and direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/Cubic Meter, Air
2799	site 1	11/19 - 11/20/73	Not constant @ 9 mph	14.42	2.26
2800	site 2	11/19 - 11/20/73	Not constant @ 9 mph	11.49	5.55
2801	site 3	11/19 - 11/20/73	Not constant @ 9 mph	101.94	6.06
2802	site 1	11/25 - 11/26/73	West @ 11 mph	9.14	1.34
2803	site 2	11/25 - 11/26/73	West @ 11 mph	5.97	0.51
2804	site 3	11/25 - 11/26/73	West @ 11 mph	56.67	4.71

cc: Montana Power Co. (3)
Butte, Montana
Attention: Dan Berube

CERTIFIED Leland J. Walker

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

Revised: November 26, 1974

Report of: Water soluble sulfate collected on
High Volume Air Sample Filters
Colstrip Air Monitoring

Date January 31, 1974
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
Post Office Box 419
Colstrip, MT 59323

12/73

Sample Identification

Summarized below are the water soluble sulfate results which were collected on a high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U. W. Public Health Standard procedures. The results cover approximately a twenty-four hour period.

TEST RESULTS

Lab No.	Location	Dates Covered	Wind velocity (mph) and direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO4/Cubic Meter, Air
33374	Site 1	12/2 -12/3/73	Southwest @ 9 mph	14.65	3.68
33375	Site 2	12/2 -12/3/73	Southwest @ 9 mph	10.81	3.71
[illegible]6	Site 3	12/2 -12/3/73	Southwest @ 9 mph	46.12	6.47
33377	Site 1	12/8 -12/9/73	Northwest @ 13 mph	4.51	2.59
33378	Site 2	12/8 -12/9/73	Northwest @ 13 mph	3.45	1.10
33379	Site 3	12/8 -12/9/73	Northwest @ 13 mph	50.97	4.84
33380	Site 1	12/14-12/15/73	Northwest @ 6.5 mph	14.14	3.94
33381	Site 2	12/14-12/15/73	Northwest @ 6.5 mph	8.94	0.25
33382	Site 3	12/14-12/15/73	Northwest @ 6.5 mph	89.60	6.30
33383	Site 1	12/20-12/21/73	Southwest @ 10.5 mph	9.82	1.59
33384	Site 2	12/20-12/21/73	Southwest @ 10.5 mph	17.47	2.53
33385	Site 3	12/20-12/21/73	Southwest @ 10.5 mph	26.81	6.08
33386	Site 1	12/26-12/27/73	South @ 7 mph	17.00	2.70
33387	Site 2	12/26-12/27/73	South @ 7 mph	18.48	3.31
33388	Site 3	12/26-12/27/73	South @ 7 mph	153.75	4.64

cc: Montana Power Company (3)
Butte, MT
Attention: Dan Berube

CERTIFIED ________ P.E.

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

ort of: Water soluble sulfate collected on
High Volume Air Sample Filters
Colstrip Air Monitoring

Date April 2, 1974
Job Number 64-53
Sheet 1 of 1

ɔort to: The Montana Power Company (1)
Post Office Box 419
Colstrip, MT 59323

Sample Identification

Summarized below are the water soluble sulfate results which were collected on a high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U. S. Public Health Standard procedures. The results cover approximately a twenty-four hour period.

TEST RESULTS

Location	Dates Covered	Wind velocity (mph) and direction	Particulate Matter, Mg/M^3 air	$MgSO_4/M^3$ air
site 3	2-11 to 2-12-74	West @ 17 mph	71.80	3.91
site 1	2-11 to 2-12-74	West @ 17 mph	4.46	2.60
site 2	2-11 to 2-12-74	West @ 17 mph	5.50	1.39
site 3	2-17 to 2-18-74	West @ 13 mph	107.99	5.11
site 1	2-17 to 2-18-74	West @ 13 mph	7.58	2.00
site 2	2-17 to 2-18-74	West @ 13 mph	5.99	2.36

ntana Power Company (3)
tte, MT
tention: Dan Berube

Certified Leonard J. Walker

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

2

Report of: Particulate Matter Collected
on High Volume Air Sampler
Colstrip Air Monitoring

Date April 3, 1974
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
Post Office Box 419
Colstrip, Montana 59323

Sample Identification

Summarized below are the particulate matter results which were collected on a high volume air sampler on the dates shown. The results cover approximately a twenty-four hour period.

TEST RESULTS

1 4

ation	Lab No.	Dates Covered	Temperature °F Average	Barometric Pressure Millibars (average)	Relative Humidity, Percent (average)	Wind Velocity (mph) and Direction	Particulate Matter, Micrograms per cubic Meter of Air
	34609	2-11 to 2-12-74	43	892	29	West @ 17 mph	71.80
te 1	34610	2-11 to 2-12-74	43	892	29	West @ 17 mph	4.46
te 2	34611	2-11 to 2-12-74	43	892	29	West @ 17 mph	5.50
te 3	34612	2-17 to 2-18-74	35	891	48.5	West @ 13 mph	107.99
te 1	34613	2-17 to 2-18-74	35	891	48.5	West @ 13 mph	7.58
te 2	34614	2-17 to 2-18-74	35	891	48.5	West @ 13 mph	5.99

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7 flagged reports

cc: Montana Power Company (3)
Butte, Montana
Attention: Dan Berube

Certified

4 B

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

Revised: November 26, 1974

Date August 1, 1974
Job Number 64-53
Sheet 1 of 1

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U. S. Public Health Standard procedures. The results each cover approximately a twenty-four hour period.

TEST RESULTS:

Lab No.	Location	Dates Covered	Wind Velocity (mph) and direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/Cubic Meter, Air
3[illegible]4	Site 1	3-02 to 3-03-74	West at 17	6.77	1.45
3[illegible]25	Site 2			5.71	1.25
36126	Site 3			45.44	2.88
36127	Site 1	3-15 to 3-16-74	Southeast at 10	15.54	5.31
36128	Site 2			10.60	2.66
36129	Site 3			56.73	4.47
36130	Site 1	3-21 to 3-22-74	West at 17	18.38	2.47
36131	Site 2			14.05	1.94
36132	Site 3			55.19	5.65
36133	Site 3	4-23 to 4-24-74	Variable at 10	111.55	2.91
36134	Site 3	5-08 to 5-09-74	South at 10	123.40	3.85
36135	Site 1	5-14 to 5-15-74	South at 12	12.45	1.83
36136	Site 2			11.52	0.39
36137	Site 3			129.89	3.39

cc: Dan Berube (3)
MPC - Butte

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

Revised: November 26, 1974

Report of: Particulate Matter and Water Soluble Sulfate Collected on High Volume Air Sample Filters Colstrip Air Monitoring

Date August 1, 1974
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U. S. Public Health Standard procedures. The results each cover approximately a twenty-four hour period.

TEST RESULTS:

ab No.	Location	Dates Covered	Wind Velocity (mph) and direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/Cubic Meter, Air
2	Site 1	5-20 to 5-21-74	West at 26	3.95	0.65
33	Site 2			3.45	0.38
6984	Site 3			32.59	3.95
36985	Site 1	5-26 to 5-27-74	West at 8	10.24	2.35
36986	Site 2			11.05	1.38
36987	Site 3			53.07	3.05
36988	Site 1	6-01 to 6-02-74	South at 12	15.39	4.07
36989	Site 2			11.67	4.59
36990	Site 3			56.91	5.28
36991	Site 1	6-07 to 6-08-74	Northwest at 11	5.47	1.52
36992	Site 2			5.54	0.97
36993	Site 3			34.02	4.79
36994	Site 1	6-13 to 6-14-74	Northwest at 11	28.96	1.46
36995	Site 2			24.55	1.36
36996	Site 3			155.02	2.82
36997	Site 1	6-19 to 6-20-74	Southwest at 10	46.97	4.10
36998	Site 2			36.03	3.93
36999	Site 3			110.35	4.13

c Dan Berube (3)
MPC - Butte

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

Revised: November 26, 1974

Report of: Particulate Matter and Water Soluble Sulfate Collected on High Volume Air Sample Filters Colstrip Air Monitoring

Date August 1, 1974
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U. S. Public Health Standard procedures. The results each cover approximately a twenty-four hour period.

TEST RESULTS:

Lab No.	Location	Dates Covered	Wind Velocity (mph) and direction	Particulate Matter, Micrograms per Cubic Meter, Air	Micrograms SO_4/Cubic Meter, Air
37276	Site 1	6-25 to 6-26-74	Southeast at 16	36.91	1.77
3[illegible]7	Site 2			35.24	1.65
37278	Site 3			111.24	3.02
37279	Site 1	7-01 to 7-02-74	North at 10	25.25	1.50
37280	Site 2			19.59	1.88
37281	Site 3			118.64	1.77

cc: Dan Berube (3)
MPC Butte

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

eport of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Date December 12, 1974
Job Number 64-53
Sheet 1 of 1

eport to: The Montana Power Company (1)
P. O. Box 419
Colstrip, MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U. S. Public Health Standard procedures. The results cover approximately a 24-hour period.

TEST RESULTS:

o.	Location	Dates Covered	Wind Velocity (mph) and direction	Particulate Matter Micrograms per cubic meter, air	Micrograms SO_4/cubic meter,air
	Site 1	8-24-74 to 8-25-74	NNW at 12 mph	25.06	1.80
2	Site 2			56.16	2.06
3	Site 3			140.14	2.74
4	Site 1	8-29-74 to 8-30-74	WNW at 14 mph	34.57	2.56
5	Site 2			21.47	0.74
6	Site 3			514.91	6.97

cc: Dan Berube - MPC, Butte (3)

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Date December 12, 1974
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U. S. Public Health Standard procedures. The results cover approximately a 24-hour period.

TEST RESULTS:

b No.	Location	Dates Covered	Wind Velocity (mph) and direction	Particulate Matter Micrograms per cubic meter, air	Micrograms SO_4/cubic meter,air
23	Site 1	9-05-74 to 9-06-74	WNW at 12 mph	41.28	3.12
2377	Site 2			20.13	1.09
2378	Site 3			322.62	4.90
2379	Site 1	9-11-74 to 9-12-74	WNW at 8 mph	2.42	<0.25
2380	Site 2			2.56	<0.25
2381	Site 3			51.02	3.05
2382	Site 1	9-17-74 to 9-18-74	SE at 9 mph	51.82	0.39
2383	Site 2			24.63	4.11
2384	Site 3			285.90	4.98
2385	Site 1	9-23-74 to 9-24-74	NW at 11 mph	33.00	5.45
2386	Site 2			32.02	4.31
2387	Site 3			611.67	13.48
2399	Site 1	9-29-74 to 9-30-74	Not constant at 12 mph	24.83	4.00
2389	Site 2			16.88	3.43
2390	Site 3			215.36	5.37
2391	Site 1	10-05-74 to 10-06-74	SSW at 9 mph	3.85	3.07
2392	Site 2			5.28	3.02
2393	Site 3			50.15	6.12

cc: Dan Berube - MPC - Butte (3)

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Date December 23, 1974
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U. S. Public Health Standard procedures. The results cover approximately a 24-hour period.

TEST RESULTS:

L No.	Location	Dates Covered	Wind Velocity (mph) and direction	Particulate Matter Micrograms per cubic meter, air	Micrograms SO_4/cubic meter,air
42582	Site 1	10-11-74 to 10-12-74	South at 10 mph	73.32	3.2
42583	Site 2			16.18	1.2
42584	Site 3			83.13	6.1
42585	Site 1	10-17-74 to 10-18-74	Not constant at 10 mph	93.00	4.3
42586	Site 2			32.39	2.7
42587	Site 3			451.09	8.8
42588	Site 1	10-23-74 to 10-24-74	Northwest at 8 mph	79.18	3.7
42589	Site 2			33.50	2.9
42590	Site 3			287.49	6.2
42591	Site 1	10-29-74 to 10-30-74	East at 15 mph	25.58	5.2
42592	Site 2			14.51	3.2
42593	Site 3			241.93	8.3
42594	Site 1	11-4-74 to 11-5-74	Southwest at 10 mph	25.97	3.5
42595	Site 2			8.37	2.3
42596	Site 3			314.78	5.2

cc: Dan Berube - MPC, Butte (3)

Certified

9B

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Date January 7, 1975
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (1)
P. O. Box 419
Colstrip, MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U. S. Public Health Standard procedures. The results cover approximately a 24-hour period.

TEST RESULTS:

b No.	Location	Dates Covered	Wind Velocity (mph) and direction	Particulate Matter Micrograms per cubic meter, air	Micrograms SO_4/cubic meter,air
706	Site 1	11-10--11-11-74	WNW at 17 mph	7.21	2.9
707	Site 2			7.85	3.4
708	Site 3			51.25	8.0
709	Site 1	11-16--11-17-74	Not Constant at 10	16.75	5.0
710	Site 2			9.68	4.0
711	Site 3			150.10	8.1
712	Site 1	11-22--11-23-74	NNW at 10 mph	21.07	6.3
713	Site 2			17.65	6.6
714	Site 3			67.38	9.0
715	Site 1	11-29--11-30-74	SE at 10 mph	27.33	5.2
716	Site 2			7.30	2.3
717	Site 3			144.36	5.6

: MPC - Butte (3)
Attention: Dan Berube

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

rticulate Matter and Water Soluble Sulfate
llected on High Volume Air Sample Filters
lstrip Air Monitoring

Date January 24, 1975
Job Number 64-53
Sheet 1 of 1

e Montana Power Company (1)
. O. Box 419
lstrip, MT 59323

ple Identification:

mmarized below are the results of particulate matter and water soluble lfate determinations of samples which were collected on high volume air ample filters on the dates shown. Tests were analyzed in accordance with e National Air Sampling Network, Division of Air Pollution, U. S. Public ealth Standard procedures. The results cover approximately a 24-hour eriod.

EST RESULTS:

cation	Dates Covered	Wind Velocity (mph) and direction	Particulate Matter Micrograms per cubic meter, air	Micrograms SO_4/cubic meter, air
te 1	12-04-74 to 12-05-74	WNW at 10 mph	42.63	4.1
te 2			15.71	3.0
te 3			202.72	7.8
te 1	12-10-74 to 12-11-74	SW at 11 mph	45.11	3.8
te 2			40.34	2.8
te 3			226.38	7.2
te 1	12-16-74 to 12-17-74	WSW at 11 mph	14.43	2.9
te 2			20.09	2.4
te 3			47.52	4.1
te 1	12-22-74 to 12-23-74	WNW at 24 mph	30.97	3.4
ite 2			21.51	1.6
ite 3			97.08	5.8
ite 3			Results invalid*	
ite 1	12-28-74 to 12-29-74	WSW at 8 mph	9.81	3.4
ite 2			15.11	1.9
ite 3			50.23	4.6

*Insufficient sampling time.

Dan Berube (3)

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate Collected on High Volume Air Sample Filters Colstrip Air Monitoring

Date March 6, 1975
Job Number 64-53
Sheet 1 of 1

Report to:
The Montana Power Company (1)
P. O. Box 419
Colstrip, MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U. S. Public Health Standard procedures. The results cover approximately a 24-hour period.

TEST RESULTS:

ab No.	Location	Dates Covered	Wind Velocity (mph) and direction	Particulate Matter Micrograms per cubic meter, air	Micrograms SO_4/cubic meter,air
356	Site 1	1-3-75 to 1-4-75	SSE at 10 m.p.h.	33.94	1.6
35	Site 2			62.14	1.1
3568	Site 3			96.64	2.2
569	Site 1	1-9-75 to 1-10-75	Not Constant at 9 mph	17.22	3.0
570	Site 2			19.76	2.6
571	Site 3			30.67	4.0
572	Site 1	1-15-74 to 1-16-75	SW at 8 m.p.h.	25.61	2.6
573	Site 2			15.21	2.2
574	Site 3			79.96	3.4
575	Site 1	1-21-75 to 1-22-75	SW at 16 m.p.h.	8.96	1.5
576	Site 2			31.39	1.3
577	Site 3			106.04	3.4
578	Site 1	1-27-75 to 1-28-75	WNW at 10 m.p.h.	11.58	2.4
79	Site 2			14.48	2.5
80	Site 3			32.11	3.2

cc: MPC - Butte (3)
Attn: Dan Berube

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Date April 21, 1975
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P O BOX 419
COLSTRIP MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U. S. Public Health Standard procedures. The results cover approximately a 24-hour period.

TEST RESULTS:

Lab No.	Location	Dates Covered	Wind Velocity and direction (mph)	Particulate Matter Micrograms per cubic meter, air	Micrograms SO_4/cubic Meter, Air
44399	Site 1	2-2-75 to 2-3-75	WNW at 13 mph	15.54	4.2
44400	Site 2			11.48	4.3
44	Site 3			37.51	6.5
44402	Site 1	2-8-75 to 2-9-75	SSW at 10 mph	14.19	5.4
44403	Site 2			20.52	4.5
44404	Site 3			27.55	7.2
44405	Site 1	2-14-75 to 2-15-75	Not Constant at 7 mph	14.40	4.0
44406	Site 2			12.86	5.0
44407	Site 3			23.09	6.4
44408	Site 1	2-20-75 to 2-21-75	WNW at 31 mph	10.02	3.1
44409	Site 2			6.33	2.8
44410	Site 3			89.98	7.7
44411	Site 1	2-26-75 to 2-27-75	WNW at 27 mph	7.49	2.8
44412	Site 2			47.63	4.2
44413	Site 3			126.04	7.2

cc: Dan Berube - Butte (3)

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring Project

Date May 16, 1975
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P O BOX 419
COLSTRIP MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U. S. Public Health Standard procedures. The results cover approximately a 24-hour period.

TEST RESULTS:

Lab No.	Location	Dates Covered	Wind Velocity (mph) and direction	Particulate Matter Micrograms per cubic meter, air	Micrograms SO_4/Cubic meter, air
4	Site 1	3-4-75 to 3-5-75	NNE at 8 mph	6.76	1.8
45152	Site 2			4.98	3.1
45153	Site 3			123.96	4.6
45154	Site 1	3-10-75 to 3-11-75	WNW at 12 mph	8.94	4.5
45155	Site 2			7.36	2.4
45156	Site 3			29.49	10.4
45157	Site 1	3-16-75 to 3-17-75	WNW at 19 mph	16.77	1.7
45158	Site 2			27.64	2.5
45159	Site 3			281.75	5.6
45160	Site 1	3-22-75 to 3-23-75	WNW at 20 mph	7.95	1.3
45161	Site 2			7.30	3.1
45162	Site 3			36.99	7.1
45163	Site 1	3-28-75 to 3-29-75	WNW at 19 mph	12.63	6.5
45164	Site 2			29.59	6.0
45165	Site 3			53.55	7.9

cc: Dan Berube (3)
MPC - Butte

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter & Water Soluble Sulfate Collected on High Volume Air Sample Filters Colstrip Air Monitoring

Date May 28, 1975
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P O BOX 419
COLSTRIP MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover approximately a 24-hour period.

TEST RESULTS:

Lab No.	Location	Dates Covered	Wind Velocity (mph) and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/Cubic Meter, Air
45625	Site 1	4-04-75 to 4-05-75	NW at 14 mph	13.71	5.6
45626	Site 2	"	"	12.88	5.4
[illegible]7	Site 3	"	"	55.61	11.0
45628	Site 1	4-09-75 to 4-10-75	N-NW at 7 mph	15.59	10.5
45629	Site 2	"	"	9.72	6.7
45630	Site 3	"	"	49.27	13.0
45631	Site 1	4-15-75 to 4-16-75	E at 10 mph	11.09	5.2
45632	Site 2	"	"	11.54	4.0
45633	Site 3	"	"	146.57	9.1
45634	Site 1	4-21-75 to 4-22-75	SE at 8 mph	24.74	7.0
45635	Site 2	"	"	17.78	7.1
45636	Site 3	"	"	Sample Invalid*	
45637	Site 1	4-27-75 to 4-28-75	NW at 29 mph	6.90	2.9
45638	Site 2	"	"	6.97	2.7
45639	Site 3	"	"	76.39	7.0
45640	Site 1	5-03-75 to 5-04-75	SW at 11 mph	29.43	5.6
45641	Site 2	"	"	35.09	5.6
45642	Site 3	"	"	129.43	7.6

*Transducer chart did not record.

cc: Mr. Dan Berube (3)
The Montana Power Company
Butte, Montana

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

MPC
Hi Vol

Report of:	Particulate Matter and Water Soluble Sulfate Collected on High Volume Air Sample Filters Colstrip Air Monitoring	Date	August 22, 1975
		Job Number	64-53
		Sheet	1 of 1

Report to:
THE MONTANA POWER COMPANY (1)
P O BOX 419
COLSTRIP MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U. S. Public Health Standard procedures. The results cover approximately a 24-hour period.

TEST RESULTS:

Lab No.	Location	Dates Covered	Wind Velocity (mph) and direction	Particulate Matter Micrograms per cubic meter, air	Micrograms SO_4/cubic Meter, Air
48620	Site 1	7-2--7-3-75	ESE at 11 mph	29.68	2.6
48621	Site 2			25.83	1.4
48622	Site 3			144.46	6.3
48623	Site 1	7-8--7-9-75	ESE at 8 mph	16.24	1.8
48624	Site 2			10.99	0.5
48625	Site 3			75.03	1.4
48626	Site 1	7-14--7-15-75	SE at 10 mph	92.31	1.5
48627	Site 2			24.51	0.7
48628	Site 3			259.83	2.5
48629	Site 1	7-20--7-21-75	Not constant at 8 mph	42.29	1.7
48630	Site 2			20.73	0.3
48631	Site 3			173.17	2.4
48632	Site 1	7-26--7-27-75	NW at 7 mph	112.11	2.6
48633	Site 2			34.06	1.6
48634	Site 3			309.47	2.4

cc: MPC - Butte (3)
Dan Berube

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring Project

Date October 10, 1975
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P O BOX 419
COLSTRIP MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U. S. Public Health Standard procedures. The results cover approximately a 24-hour period.

TEST RESULTS:

Lab No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per cubic meter, air	Micrograms SO_4/Cubic Meter, air
50119	Site 1	8-1-75 to 8-2-75	SW at 13 mph	19.47	3.4
50120	Site 2			27.27	4.0
50121	Site 3			84.87	4.8
50122	Site 1	8-7-75 to 8-8-75	SW at 15 mph	32.49	3.0
50123	Site 2			32.95	3.4
50124	Site 3			194.04	4.7
50125	Site 1	8-14-75 to 8-15-75	Not constant at 12 mph	32.51	2.8
50126	Site 2			12.65	1.7
50127	Site 3			134.22	2.8
50128	Site 1	8-19-75 to 8-20-75	Easterly at 10 mph	26.20	1.8
50129	Site 2			17.58	1.8
50130	Site 3			85.05	2.3
50131	Site 1	8-25-75 to 8-26-75	Southerly at 7 mph	44.63	1.8
50132	Site 2			15.83	2.7
50133	Site 3			125.65	4.6
50134	Site 1	8-31-75 to 9-1-75	NE at 17 mph	21.06	3.8
50135	Site 2			11.91	2.0
50136	Site 3			127.11	4.4

cc: Dan Berube (3)
MPC-Butte

Certified Leland J. Walker

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Date December 17, 1975
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P O BOX 419
COLSTRIP MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U. S. Public Health Standard procedures. The results cover approximately a 24-hour period.

TEST RESULTS:

Lab No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/cubic Meter, Air
52697	Site 1	10-06-75 to 10-07-75	SSE at 11 mph	37.50	0.002
52698	Site 2			22.26	0.001
52699	Site 3			143.81	0.002
52700	Site 1	10-12-75 to 10-13-75	WNW at 7 mph	7.28	0.002
52701	Site 2			5.78	0.002
52702	Site 3			25.86	0.004
52703	Site 1	10-18-75 to 10-19-75	SW at 12 mph	35.94	0.002
52704	Site 2			Sample Invalid*	
52705	Site 3			117.95	0.002
52706	Site 1	10-24-75 to 10-25-75	SW at 13 mph	12.57	0.002
52707	Site 2			Sample Invalid*	
52708	Site 3			176.50	0.003
52709	Site 1	10-30-75 to 10-31-75	NW at 13 mph	82.23	0.002
52710	Site 2			20.67	0.001
52711	Site 3			218.06	0.003

*Chart did not record properly.

cc: MPC - Butte (3)
Dan Berube

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of:	Particulate Matter and Water Soluble Sulfate Collected on High Volume Air Sample Filters Colstrip Air Monitoring	Date	January 20, 1976
		Job Number	64-53
		Sheet	1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover approximately a 24-hour period.

TEST RESULTS:

b	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/cubic meter, Ai
3599	Site 1	11-5-75 to 11-6-75	NW at	70.73	3.0
3600	Site 2		12 mph	23.13	2.4
3601	Site 3			271.97	4.1
3602	Site 1	11-11-75 to 11-12-75	Westerly	120.28	4.6
	Site 2		at 15 mph	No sample received*	
3603	Site 3			412.61	6.4
3604	Site 1	11-17-75 to 11-18-75	North	3.46	1.7
3605	Site 2		at 12 mph	0.47	1.4
3606	Site 3			15.20	4.0
3607	Site 1	11-23-75 to 11-24-75	Not Constant	18.46	4.3
3608	Site 2		at 9 mph	8.37	3.3
3609	Site 3			31.46	3.4
3610	Site 1	11-29-75 to 11-30-75	East	20.84	4.9
3611	Site 2		at 12 mph	14.06	5.4
3612	Site 3			114.19	7.1

c: MPC - Butte (3)
Dan Berube

Certified Gary G. O'Dell

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Date March 4, 1976
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover approximately a 24-hour period.

TEST RESULTS:

No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/cubic meter, Air
493	Site 1	12-5-75 to 12-6-75	Northerly	19.60	4.5
494	Site 2		at 9 mph	8.39	2.1
495	Site 3			56.65	5.6
496	Site 1	12-11-75 to 12-12-75	SE at	5.32	3.1
497	Site 2		9 mph	Sample Invalid*	
498	Site 3			16.69	5.2
499	Site 1	12-17-75 to 12-18-75	WNW at	24.85	4.5
500	Site 2		13 mph	16.59	3.8
501	Site 3			61.00	4.6
502	Site 1	12-23-75 to 12-24-75	WNW at	17.21	4.1
503	Site 2		14 mph	16.59	2.8
504	Site 3			83.90	2.7
505	Site 1	12-29-75 to 12-30-75	Westerly	13.40	0.7
506	Site 2		at 10 mph	19.21	1.2
507	Site 3			80.41	3.8

*Chart did not record.

: MPC - Butte (3)
Dan Berube

Certified Gary G. O'Dell

-/3

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate Collected on High Volume Air Sample Filters Colstrip Air Monitoring

Date May 5, 1976
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover approximately a 24-hour period.

TEST RESULTS:

No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/cubic meter, Air
230	Site 1	2-3-76 to 2-4-76	Northeast at	10.01	2.6
231	Site 2		11 mph	9.72	1.5
232	Site 3			51.30	3.1
233	Site 1	2-9-76 to 2-10-76	WNW at	27.68	1.1
234	Site 2		15 mph	37.51	4.0
235	Site 3			131.83	4.2
236	Site 1	2-15-76 to 2-16-76	Southwest at	18.69	0.8
237	Site 2		15 mph	Sample Invalid*	
238	Site 3			154.31	2.0
239	Site 1	2-21-76 to 2-22-76	West at	9.20	2.2
240	Site 2		14 mph	12.13	0.6
241	Site 3			146.81	1.9
242	Site 1	2-27-76 to 2-28-76	Not Constant	7.44	5.1
243	Site 2		at 16 mph	2.29	0.5
244	Site 3			50.82	3.0

*Filter improperly positioned

MPC - Butte (3)
Dan Berube

Certified Gary G. O'Dell

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Date July 30, 1976
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover approximately a 24-hour period.

TEST RESULTS:

No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/cubic meter, Air
3570	Site 1	3/3/76 to 3/4/76	NNW at	9.52	2.3
3571	Site 2		7 mph	11.14	1.7
3572	Site 3			52.15	2.3
3573	Site 1	3/11/76 to 3/12/76	Westerly at	11.13	1.5
3574	Site 2		15 mph	9.10	1.7
3575	Site 3			87.13	2.7
3576	Site 1	3/16/76 to 3/17/76	Westerly at	23.14	0.4
3577	Site 2		15 mph	22.92	0.8
3578	Site 3			172.00	2.3
3579	Site 1	3/21/76 to 3/22/76	SSW at	18.35	2.5
3580	Site 2		17 mph	16.10	0.2
3581	Site 3			136.28	2.5
3582	Site 1	3/28/76 to 3/29/76	NW at	16.08	0.8
3583	Site 2		10 mph	23.66	0.4
3584	Site 3			97.68	2.3

: MPC - Butte (3)
Dan Berube

Certified Gary G. O'Dell

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Date July 30, 1976
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover approximately a 24-hour period.

TEST RESULTS:

ab No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/cubic meter, Air
63585	Site 1	4/3/76 to 4/4/76	SE at	32.09	-0.1
63586	Site 2		11 mph	8.85	0.6
63587	Site 3			107.96	18.3
63588	Site 1	4/9/76 to 4/10/76	NW at	79.58	3.2
63589	Site 2		18 mph	31.64	3.0
63590	Site 3			156.25	4.4
63591	Site 1	4/21/76 to 4/22/76	ESE at	43.77	2.4
63592	Site 2		12 mph	11.95	0.6
63593	Site 3			99.72	0.6
63594	Site 1	4/27/76 to 4/28/76	East at	Sample Invalid*	
63595	Site 2		11 mph	9.80	0.2
63596	Site 3			14.14	1.9
63597	Site 1	5/21/76 to 5/22/76	SW at	18.85	0.2
63598	Site 2		11 mph	10.25	2.1
63599	Site 3			57.46	0.2

*chart did not work.

Minus sign indicates less than the reported value was present in the sample.

c: MPC - Butte (3)
Dan Berube

Certified Gary G. O'Dell

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate Collected on High Volume Air Sample Filters Colstrip Air Monitoring

Date July 30, 1976
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover approximately a 24-hour period.

TEST RESULTS:

No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/cubic meter, Air
	Site 1	6/8/76 to 6/9/76	South at	No Sample Received*	
3600	Site 2		10 mph	Sample Invalid**	
3601	Site 3			107.06	1.1
	Site 1	6/14/76 to 6/15/76	West at	No Sample Received*	
3602	Site 2		17 mph	Sample Invalid**	
3603	Site 3			52.29	13.7
	Site 1	6/20/76 to 6/21/76	Not Constant	No Sample Received*	
3604	Site 2		at 9 mph	13.50	0.2
3605	Site 3			69.26	0.2
	Site 1	6/26/76 to 6/27/76	SW at	No Sample Received*	
3606	Site 2		13 mph	13.79	8.1
3607	Site 3			90.92	0.7

*No electricity at site.
**Chart did not work.

: MPC - Butte (3)
Dan Berube

Certified Gary G. O'Dell

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate Collected on High Volume Air Sample Filters Colstrip Air Monitoring

Date September 23, 1976
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover approximately a 24-hour period.

TEST RESULTS:

b No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Microgram SO$_4$/cubic meter, Ai
	Site 1	7/2/76 to 7/3/76	SW at	No Sample Received*	
5830	Site 2	"	10 mph	Sample Invalid**	
5831	Site 3	"		52.45	5.5
5832	Site 1	7/8/76 to 7/9/76	SW at	40.10	4.6
5833	Site 2	"	8 mph	23.58	4.0
5834	Site 3	"		Sample Invalid***	
5835	Site 1	7/14/76 to 7/15/76	SE at	18.99	2.3
5836	Site 2	"	11 mph	16.89	1.2
5837	Site 3	"		86.28	4.1
5838	Site 1	7/20/76 to 7/21/76	SE at	46.58	4.5
5839	Site 2	"	10 mph	12.93	0.5
5840	Site 3	"		69.56	5.6
5841	Site 1	7/26/76 to 7/27/76	SSE at	83.64	3.3
5842	Site 2	"	14 mph	83.61	0.2
5843	Site 3	"		89.30	2.9

*No electricity at site.
**Filter had a hole in it when received
***Chart did not record

c: MPC - Butte (3)

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Date October 4, 1976
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover approximately a 24-hour period.

TEST RESULTS:

b No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/cubic meter, Air
6175	Site 1	8/1/76 to 8/2/76	ESE at	30.89	2.2
6176	Site 2		18 mph	7.27	0.3
	Site 3			No Sample Received*	
56177	Site 1	8/7/76 to 8/8/76	WNW at	35.37	2.5
56178	Site 2		12 mph	22.21	1.5
	Site 3			No Sample Received*	
56179	Site 1	8/13/76 to 8/14/76	NW at	79.11	3.2
56180	Site 2		14 mph	20.95	1.7
56181	Site 3			127.93	4.3
56182	Site 1	8/19/76 to 8/20/76	WSW at	57.38	4.2
56183	Site 2		10 mph	27.07	2.8
56184	Site 3			125.74	5.8
56185	Site 1	8/25/76 to 8/26/76	SE at	43.25	3.8
56186	Site 2		14 mph	15.58	3.8
56187	Site 3			161.20	5.4

*HVAS Motor Malfunctioned

c: MPC - Butte (5)
Dan Berube

Certified Larry G. O'Dell

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of:	Particulate Matter and Water Soluble Sulfate Collected on High Volume Air Sample Filters Colstrip Air Monitoring	Date	October 27, 1976
		Job Number	64-53
		Sheet	1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover approximately a 24-hour period.

TEST RESULTS:

No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/cubic meter, Air
7187	Site 1	8/31/76 to 9/1/76	SW at	112.34	7.4
7188	Site 2		8 mph	25.58	3.5
7189	Site 3			281.98	9.5
7190	Site 1	9/7/76 to 9/8/76	WSW at	5.42	2.1
7191	Site 2		15 mph	8.72	2.1
7192	Site 3			50.04	4.7
7193	Site 1	9/12/76 to 9/13/76	NW at	31.80	3.3
	Site 2		11 mph	Sample Invalid*	
7194	Site 3			76.32	5.2
7195	Site 1	9/18/76 to 9/19/76	WNW at	16.76	1.8
7196	Site 2		13 mph	12.40	1.9
7197	Site 3			26.48	2.3
7198	Site 1	9/24/76 to 9/25/76	Not Constant	36.28	4.2
7199	Site 2		at 13 mph	13.77	3.0
7200	Site 3			139.74	4.5
72	Site 1	9/30/76 to 10/1/76	Not Constant	70.31	5.8
7202	Site 2		at 12 mph	28.55	4.3
72	Site 3			204.65	7.8

*Sampler not plugged in.

: MPC - Butte (5) /
Dan Berube

Certified Gary G. O'Dell

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Date December 3, 1976
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P.O. BOX 419
COLSTRIP, MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water-soluble sulfate determinations of samples which were collected on high volume air sample filters on the dates shown. Tests were analyzed in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover approximately a 24-hour period.

TEST RESULTS:

b No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO$_4$/cubic meter, Air
273	Site 1	10/6/76 to 10/7/76	NW at	21.35	5.9
274	Site 2		8 mph	7.79	2.5
275	Site 3			51.39	5.7
276	Site 1	10/12/76 to 10/13/76	Not Con-	70.12	4.8
277	Site 2		stant at	17.93	3.2
278	Site 3		11 mph	427.55	8.6
279	Site 1	10/18/76 to 10/19/76	WSW at	51.13	5.1
280	Site 2		9 mph	16.69	2.5
281	Site 3			173.43	8.2
282	Site 1	10/26/76 to 10/27/76	South at	15.70	3.2
283	Site 2		8 mph	5.24	3.8
284	Site 3			47.46	2.7
285	Site 1	10/30/76 to 10/31/76	SW at	30.90	1.3
286	Site 2		14 mph	7.87	1.3
287	Site 3			90.71	2.0

c: MPC - Butte (5)

Certified Tony G. O'Dell

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Date December 29, 1976
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P O BOX 419
COLSTRIP MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determination on samples which were collected on high volume air sample filters on the dates shown. The particulate matter samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The water soluble sulfates were determined in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover a 24-hour period.

TEST RESULTS:

No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/cubic Meter, Air
17	Site 1	11/5/76	Not Constant	51.72	0.7
18	Site 2	to	at 7 mph	17.78	0.5
19	Site 3	11/6/76		191.48	2.7
20	Site 1	11/11/76	ESE at	84.27	2.4
21	Site 2	to	8 mph	9.08	-0.1
22	Site 3	11/12/76		305.57	8.1
23	Site 1	11/18/76	Not Constant	82.69	1.7
24	Site 2	to	at 9 mph	28.35	1.3
25	Site 3	11/19/76		298.72	6.2
26	Site 1	11/23/76	WSW at	37.97	-0.1
27	Site 2	to	13 mph	89.99	0.8
28	Site 3	11/24/76		146.53	1.5

- Butte (5)
ATTN: Dan Berube

Certified Gary G. O'Dell

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate Collected on High Volume Air Sample Filters Colstrip Air Monitoring

Date January 28, 1977
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P O BOX 419
COLSTRIP MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determination on samples which were collected on high volume air sample filters on the dates shown. The particulate matter samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The water soluble sulfates were determined in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover a 24-hour period.

TEST RESULTS:

No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/cubic Meter, Air
	Site 1	12/5/76	No Sample Received		
	Site 2	to	No Sample Received		
97	Site 3	12/6/76	South at 9 mph	179.79	6.3
98	Site 1	12/11/76	WSW at	7.91	0.1
99	Site 2	to	22 mph	17.96	1.2
00	Site 3	12/12/76		46.47	3.9
01	Site 1	12/17/76	SW at	73.92	4.7
02	Site 2	to	6 mph	14.72	3.4
03	Site 3	12/18/76		266.06	5.7
04	Site 1	12/22/76	SW at	121.10	2.9
05	Site 2	to	11 mph	26.84	2.1
06	Site 3	12/23/76		166.23	3.7
07	Site 1	12/29/76	NW at	8.89	2.5
08	Site 2	to	16 mph	14.00	2.6
0	Site 3	12/30/76		145.06	4.9

cc: MPC - Butte (5)
Dan Berube

Certified Gary G. O'Dell

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Date March 7, 1977
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P O BOX 419
COLSTRIP MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determination on samples which were collected on high volume air sample filters on the dates shown. The particulate matter samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The water soluble sulfates were determined in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Microgram SO_4/cubic Meter, Ai
2259	Site 1	1/19/77 to 1/20/77	Westerly	8.80	-0.1
2260	Site 2		at 14 mph	13.55	0.7
2261	Site 3			47.47	1.7
2262	Site 1	1/28/77 to 1/29/77	Not Constant	21.55	-0.1
2263	Site 2		at 4 mph	4.81	-0.1
2264	Site 3			69.28	1.7

No samples received for January 1 through 18.

Minus sign indicates less than the amount reported
was present in the sample.

cc: MPC - Butte (5)
Dan Berube

Certified

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Date April 8, 1977
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P O BOX 419
COLSTRIP MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determination on samples which were collected on high volume air sample filters on the dates shown. The particulate matter samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The water soluble sulfates were determined in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/cubic Meter, Air
3099	Site 1	2/3/77 to 2/4/77	WNW at 18 mph	6.05	-0.1
3100	Site 2			21.45	1.0
3101	Site 3			89.72	0.8
3102	Site 1	2/9/77 to 2/10/77	WSW at 14 mph	29.22	0.5
3103	Site 2			18.46	0.4
3104	Site 3			378.83	4.4
3105	Site 1	2/15/77 to 2/16/77	*	11.03	-0.1
3106	Site 2			15.81	-0.1
3107	Site 3			170.40	1.4
3108	Site 1	2/21/77 to 2/22/77	*	250.28	1.6
3109	Site 2			26.57	0.7
3110	Site 3			219.79	4.5
3111	Site 1	2/27/77 to 2/28/77	WNW at 15 mph*	2.18	-0.1
3112	Site 2			3.72	-0.1
3113	Site 3			44.27	0.4

*The Meteorological Data was not available after 2/15/77. The data used for calculating the high volume air sampler flows was estimated from the transducer charts and calibration curves.

Certified Larry G. O'Dell

cc: MPC - Butte (5)
Dan Berube

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Date April 28, 1977
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
P O BOX 419
COLSTRIP MT 59323

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determination on samples which were collected on high volume air sample filters on the dates shown. The particulate matter samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The water soluble sulfates were determined in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/cubic Meter, Air
3541	Site 1	3/5/77 to 3/6/77	WSW at 17 mph	10.18	-0.1
3542	Site 2			26.57	-0.1
3543	Site 3			109.84	2.6
3544	Site 1	3/11/77 to 3/12/77	Not constant at 12 mph	35.92	0.8
3545	Site 2			6.09	-0.1
3546	Site 3			160.69	3.9
3547	Site 1	3/17/77 to 3/18/77	WNW at 17 mph	9.14	-0.1
3548	Site 2			29.95	-0.1
3549	Site 3			142.68	2.6
3550	Site 1	3/23/77 to 3/24/77	SSE at 18 mph*	72.54	0.8
3551	Site 2			45.84	-0.1
3552	Site 3			306.22*	4.0

The barometric pressures were not available. The data used for calculating the high volume air sampler flows was estimated from the transducer charts and calibration curves.

*The wind speed and direction data was incomplete. Only two of the six data points were recorded.

MPC - Butte (5)
ATTN: Dick Myott

Certified Gary G. O'Dell

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Date June 2, 1977
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (5)
ATTN: DICK MYOTT
P O BOX 1338
BUTTE MT 59701

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determination on samples which were collected on high volume air sample filters on the dates shown. The particulate matter samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The water soluble sulfates were determined in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Microgr SO_4/cubic Meter, Air
4430	Site 1	4/4/77 to 4/5/77	W at	9.18	-0.1
4431	Site 2	"	24 mph	12.63	-0.1
4432	Site 3	"		99.28	1.0
4433	Site 1	4/10/77 to 4/11/77	Northerly at	31.06	0.8
4434	Site 2	"	11 mph	13.77	-0.1
4435	Site 3	"		110.18	2.3
4436	Site 1	4/16/77 to 4/17/77	Not Constant	53.84	1.3
4437	Site 2	"	at 16 mph	31.34	0.8
4438	Site 3	"		232.48	3.9
4439	Site 1	4/22/77 to 4/23/77	Northerly at	31.44	1.4
4440	Site 2	"	12 mph	26.38	0.1
4441	Site 3	"		187.18	2.0
4442	Site 1	4/28/77 to 4/29/77	Southerly at	60.34	1.8
4443	Site 2	"	11 mph	29.16	1.0
4444	Site 3	"		148.49	2.8

cc: MPC - Colstrip (1)
ATTN: Steve Simonds

Certified Larry G. O'Dell

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate Collected on High Volume Air Sample Filters Colstrip Air Monitoring

Date June 24, 1977
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (5)
ATTN: DICK MYOTT
P O BOX 1338
BUTTE MT 59701

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determination on samples which were collected on high volume air sample filters on the dates shown. The particulate matter samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The water soluble sulfates were determined in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover a 24-hour period.

TEST RESULTS:

No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/cubic Meter, Ai
5017	Site 1	5/4/77 to 5/5/77	Westerly at 21 mph	11.39*	-0.1
5018	Site 2			23.00*	-0.1
5019	Site 3			102.26*	-0.1
5020	Site 1	5/10/77 to 5/11/77	Southerly at 19 mph	56.35*	0.8
5021	Site 2			32.42*	0.2
5022	Site 3			141.63*	2.0
5023	Site 1	5/16/77 to 5/17/77	Northerly at 16 mph	18.05	-0.1
5024	Site 2			13.36*	-0.1
5025	Site 3			56.22	0.2
5026	Site 1	5/22/77 to 5/23/77	Southerly at 9 mph	43.56*	1.7
5027	Site 2			15.60*	0.2
5028	Site 3			100.10	2.5
5029	Site 1	5/28/77 to 5/29/77	Not Constant at 10 mph	9.29*	-0.1
5030	Site 2			6.66*	-0.1
5031	Site 3			31.64	0.5

*The high volume air sampler flows were above the range of the calibration. Flows were estimated by extending the calibration curve beyond its upper limits.

cc: MPC - Colstrip (1)
Steve Simonds

Certified

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate Collected on High Volume Air Sample Filters Colstrip Air Monitoring

Date July 26, 1977
Job Number 64-53
Sheet 1 of 1

Report to: The Montana Power Company (5)
Attention: Dick Myott
P.O. Box 1338
Butte, MT 59701

Sample Identification:

Summarized below are the results of particulate matter and water suluble sulfate determination on samples which were collected on high volume air sample filters on the dates shown. The particulate matter samples were analyzed in accordance with the Code of Federal Regulation, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The water soluble sulfates were determined in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover a 24-hour period.

TEST RESULTS:

ab No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/cubic Meter, Air
14	Site 1	6/6/77 to 6/7/77	Southerly	64.94	1.7
15	Site 2	"	at 9 mph	27.42*	0.5
16	Site 3	"	"	221.16	3.3
17	Site 1	6/12/77 to 6/13/77	Northerly	6.86*	-0.1
18	Site 2	"	at 12 mph	4.32	-0.1
19	Site 3	"	"	44.17	-0.1
20	Site 1	6/18/77 to 6/19/77	Not constant	14.39*	0.9
21	Site 2	"	at 7 mph	11.07*	-0.1
22	Site 3	"	"	37.86	1.4
23	Site 1	6/24/77 to 6/25/77	Westerly	41.17	1.0
24	Site 2	"	at 12 mph	21.77*	-0.1
25	Site 3	"	"	112.15	2.0
26	Site 1	6/30/77 to 7/1/77	Not constant	56.86*	0.4
27	Site 2	"	at 11 mph	19.75*	0.5
28	Site 3	"	"	162.39	1.9

*The high volume air samples flows were above the range of the calibration. Flows were estimated by extending the calibration curve beyond its upper limits.

cc: MPC - Colstrip (1)
Attn: Steve Simonds

Certified

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate Collected on High Volume Air Sample Filters Colstrip Air Monitoring

Date August 24, 1977
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (1)
ATTN: DICK MYOTT
P O BOX 1338
BUTTE MT 59701

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determination on samples which were collected on high volume air sample filters on the dates shown. The particulate matter samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The water soluble sulfates were determined in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Microgr SO_4/cubic Meter, Air
6279	Site 1	7/6/77 to 7/7/77	WNW at	13.60	-0.1
6280	Site 2		13 mph	31.67	2.1
6281	Site 3			85.96	1.2
6282	Site 1	7/12/77 to 7/13/77	Westerly at	56.80	0.3
6283	Site 2		19 mph	24.53	-0.1
6284	Site 3			135.59	1.8
6285	Site 1	7/18/77 to 7/19/77	Northerly at	22.26	0.1
6286	Site 2		16 mph	16.34	-0.1
6287	Site 3			85.76	0.3
6288	Site 1	7/24/77 to 7/25/77	Easterly at	58.70	0.9
6289	Site 2		16 mph	19.23	-0.1
6290	Site 3			166.12	2.2
6291	Site 1	7/30/77 to 7/31/77	WNW at	12.92	0.9
6292	Site 2		13 mph	10.86	1.0
6293	Site 3			44.03	1.0

cc: MPC - Colstrip
ATTN: Steve Simonds

Certified

June 6 midnight

1

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Date October 4, 1977
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (5)
ATTN: DICK MYOTT
P O BOX 1338
BUTTE MT 59701

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determination on samples which were collected on high volume air sample filters on the dates shown. The particulate matter samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The water soluble sulfates were determined in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover a 24-hour period.

TEST RESULTS:

b No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/cubic Meter, Air
550	Site 1	8/5/77 to 8/6/77 ✓	Not constant	15.12	0.2
551	Site 2		at 8 mph.	11.16	0.4
552	Site 3			37.45	1.0
553	Site 4			31.11	1.2
554	Site 1	8/10/77 to 8/11/77 ✓	WNW at 10	24.15	0.8
555	Site 2		mph.	17.00	-0.1
556	Site 3			79.54	0.2
557	Site 4			51.78	1.6
558	Site 1	8/16/77 to 8/17/77 ✓	SSE at 8	32.16	1.3
559	Site 2		mph.	14.74	-0.1
560	Site 3			77.66	1.2
561	Site 4			34.19	1.1
562	Site 1	8/22/77 to 8/23/77 ✓	Westerly	24.39	1.1
563	Site 2		at 11 mph.	15.96	1.3
564	Site 3			66.06	1.1
565	Site 4			55.19	0.8
566	Site 1	8/28/77 to 8/29/77 ✓	West at	17.72	-0.1
567	Site 2		13 mph.	13.83	0.2
568	Site 3			80.35	1.2
569	Site 4			36.56	0.9

MPC - Colstrip (1)
ATTN: Steve Simonds

Certified Jay C. Lyndes

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

6 day schedul.

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Date November 10, 1977
Job Number 64-53
Sheet 1 of 2

Report to: THE MONTANA POWER COMPANY (5)
ATTN: DICK MYOTT
P O BOX 1338
BUTTE MT 59701

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determination on samples which were collected on high volume air sample filters on the dates shown. The particulate matter samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The water soluble sulfates were determined in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/cub. Meter, Air
7700	Site 1	9/4/77 ✓✓	Southerly at 7 mph	32.99	1.9
7701	Site 2			11.64	0.8
7702	Site 3			66.32	2.6
7703	Site 4			19.68	1.2
7713	Site 1	9/12/77 ✓✓	NNW at 10 mph	25.60	2.6
7714	Site 2			20.70	2.7
7715	Site 3			108.40 ✓	3.4
7716	Site 4			77.98	5.4
7720	Site 1	9/16/77 ✓✓	NNE at 11 mph	30.08	1.7
7721	Site 2			21.93	1.6
7722	Site 3			108.40 ✓	3.4
7723	Site 4			62.32	3.2
7730	Site 1	9/22/77 ✓✓	ESE at 14 mph	14.09	1.0
7731	Site 2			9.03	1.8
7732	Site 3			62.19	2.8
7733	Site 4			17.44	1.1
7740	Site 1	9/28/77 ✓✓	Northerly at 10 mph	17.25	2.0
7741	Site 2			15.34	1.4
7742	Site 3			61.53*	2.9
7743	Site 4			31.48	2.5

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate Collected on High Volume Air Sample Filters Colstrip Air Monitoring

Date November 10, 1977
Job Number 64-53
Sheet 1 of 2

Report to: THE MONTANA POWER COMPANY (5)
ATTN: DICK MYOTT
P O BOX 1338
BUTTE MT 59701

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determination on samples which were collected on high volume air sample filters on the dates shown. The particulate matter samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The water soluble sulfates were determined in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover a 24-hour period.

TEST RESULTS:

ab No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/cubic Meter, Air
	Site 1	8/31/77 ✓✓	WNW at	**	
7695	Site 2		13 mph	6.13	
7696	Site 3			48.99	
7697	Site 1	9/2/77 ✓✓	ESE at	30.80	
7698	Site 2		16 mph	13.58	
7699	Site 3			79.98	
7704	Site 1	9/6/77 ✓✓	ENE at	21.44	
7705	Site 2		10 mph	10.65	
7706	Site 3			66.43	
7707	Site 1	9/8/77 ✓✓	WNW at	15.72	
7708	Site 2		23 mph	24.87	
7709	Site 3			93.78	
7710	Site 1	9/10/77 ✓✓	East at	16.86	
7711	Site 2		9 mph	10.49	
7712	Site 3			57.91	
7717	Site 1	9/14/77 ✓✓	Not	53.45	
18	Site 2		Constant	28.06	
19	Site 3		at 7 mph	134.21	
7724	Site 1	9/18/77 ✓✓	WNW at	15.53	
7725	Site 2		11 mph	8.60	
7726	Site 3			38.83	

Northern Testing Laboratories, Inc.

Particulate Matter and Water
Soluble Sulfate

November 10, 1977
Job No. 64-53
Sheet 2 of 2

The Montana Power Co.
Butte, MT

ab No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO4/cubic Meter, Air
7727	Site 1	9/20/77 ✓✓	WNW at	28.65	
7728	Site 2		14 mph	25.86	
7729	Site 3			103.22	
7734	Site 1	9/24/77 ✓✓	Westerly at	16.46	
7735	Site 2		9 mph	7.56	
7736	Site 3			37.36	
7737	Site 1	9/26/77 ✓✓	NNW at	22.80	
7738	Site 2		7 mph	10.46	
7739	Site 3			76.01	
7744	Site 1	9/30/77 ✓✓	Northerly	6.43	
7745	Site 2		at 10 mph	3.28	
7746	Site 3			20.09	
52	Site 1	10/2/77 ✓✓	SSE at 11 mph	~~12.88~~*	
	Site 2		Sample Invalid - Timer Not Set		
8153	Site 3			49.04	
8158	Site 1	10/6/77 ✓✓	Not Constant	16.12	
8159	Site 2		at 11 mph	10.43	
8160	Site 3			56.43	
8161	Site 1	10/8/77 ✓✓	West at	5.63	
8162	Site 2		16 mph	4.74	
8163	Site 3			69.44	
8168	Site 1	10/12/77 ✓✓	WSW at	15.18	
8169	Site 2		11 mph	9.11	
8170	Site 3			75.43	
8171	Site 1	10/14/77 ✓✓	Not	19.53	
8172	Site 2		Constant	13.84	
8173	Site 3		at 9 mph	96.20	
8178	Site 1	10/18/77 ✓✓	SSW at	71.52	
8179	Site 2		9 mph	27.01	
8180	Site 3			176.89	

*Sampler ran for 36 hours
**No sample received due to power failure

Certified

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Date November 18, 1977
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (5)
ATTN: DICK MYOTT
P O BOX 1338
BUTTE MT 59701

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determination on samples which were collected on high volume air sample filters on the dates shown. The particulate matter samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The water soluble sulfates were determined in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover a 24-hour period.

TEST RESULTS:

ab No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air
8518	Site 1	10-20-77 ✓✓	Northerly at 9 mph.	43.56
8519	Site 2			22.60
8520	Site 3			135.69
8521	Site 1	10-24-77 ✓✓	Not Constant at 10 mph.	45.75
8522	Site 2			13.16
8523	Site 3			75.09
8524	Site 1	10-26-77 ✓✓	NNW at 8 mph.	28.55 (2)
8525	Site 2			12.23
8526	Site 3			98.07
8527	Site 1	10-30-77 ✓✓	West at 15 mph.	6.22
8528	Site 2			4.94 (1)
8529	Site 3			22.67
8530	Site 1	11-1-77 ✓✓	WSW at 15 mph.	19.46
8531	Site 2			4.92 (3)
8532	Site 3			60.51

(1) Filter was contaminated with transducer ink.
(2) Some particulate seemed to have been lost during shipping and handling prior to receipt in the laboratory.
(3) Sample invalid, filter was not properly centered during sampling.

Certified

NTL—110

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

6 day schedule

REVISED 12-12-77

Report of: Particulate Matter and Water Soluble Sulfate Collected on High Volume Air Sample Filters Colstrip Air Monitoring

Date November 18, 1977
Job Number 64-53
Sheet 1 of 1

Report to: THE MONTANA POWER COMPANY (5)
ATTN: DICK MYOTT
P O BOX 1338
BUTTE MT 59701

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determination on samples which were collected on high volume air sample filters on the dates shown. The particulate matter samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The water soluble sulfates were determined in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover a 24-hour period.

TEST RESULTS:

ab No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms SO_4/cubic Meter, Air
8533	Site 1	10-22-77 ✓✓	Not Constant at 11 mph.	29.33 (1.)	3.4
8534	Site 2			13.43	2.5
8535	Site 3			83.39	3.7
8536	Site 4			25.91	2.3
8537	Site 1	10-28-77 ✓✓	Southerly at 9 mph.	97.92	3.2
8538	Site 2			20.15	1.3
8539	Site 3			211.66	5.7
8540	Site 4			53.84	2.2

(1.) Filter contaminated with transducer ink.

Certified Jay C. Lynde

cc: MPC - Colstrip (1)
ATTN: Steve Simonds

Northern Testing Laboratories, Inc.

Particulate Matter and Water
Soluble Sulfate

November 10, 1977
Job No. 64-53
Sheet 2 of 2

The Montana Power Co.
Butte, MT

ab No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air	Micrograms S04/cubic Meter, Air
3154	Site 1	10/4/77 ✓✓	NNW at	9.31	1.4
3155	Site 2		6 mph	7.80	1.0
3156	Site 3			68.51	2.3
3157	Site 4			14.43	0.6
3164	Site 1	10/10/77 ✓✓	WNW at	11.19	1.1
3165	Site 2		16 mph**	13.14	1.2
3166	Site 3			62.92	1.8
3167	Site 4			60.03	1.7
3174	Site 1	10/16/77 ✓✓	WSW at	22.55	1.7
3175	Site 2		12 mph	23.44	1.3
3176	Site 3			83.16 ✓	2.8
3177	Site 4			39.80	2.2

*Sample invalid due to motor failure
**Meteorological data incomplete - only 3 readings recorded.

Certified Jay C. Lyndes

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Date December 23, 1977
Job Number 64-53
Sheet 1 of 2

Report to: THE MONTANA POWER COMPANY (5)
ATTN: DICK MYOTT
P O BOX 1338
BUTTE MT. 59701

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determination on samples which were collected on high volume air sample filters on the dates shown. The particulate matter samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The water soluble sulfates were determined in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air
8899	Site 1	11/5/77 ✓✓	Southerly	Sample Invalid (4)
8900	Site 2		at 10 mph	12.69 (4)
8901	Site 3			119.44 (4)(6)✓
8902	Site 1	11/7/77 ✓✓	Not Constant	11.83 (4)
8903	Site 2		at 14 mph	12.94 (4)
8904	Site 3			124.30 (4)✓
8909	Site 1	11/11/77 ✓✓	Southerly	~~91~~.08 (3)(4)
8910	Site 2		at 9 mph	11.95
8911	Site 3			226.48 (4)✓
8912	Site 1	11/13/77 ✓	SSE at	37.12 (4)
8913	Site 2		10 mph	~~14~~.26 (3)(4)
8914	Site 3			245.02 (2)(4)✓
8919	Site 1	11/17/77 ✓✓	West at	22.51 (4)
8920	Site 2		11 mph	12.28 (4)(7)
8921	Site 3			95.52 (1)
8922	Site 1	11/19/77 ✓	NNW at	Sample Invalid (5)
8923	Site 2		24 mph	Sample Invalid (5)
24	Site 3			18.28

Northern Testing Laboratories, Inc.

Particulate Matter and Water
Soluble Sulfate

December 23, 1977
Job No. 64-53
Sheet 2 of 2

The Montana Power Co.
Butte, MT

ab No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air
3929	Site 1	11/23/77 ✓✓	Not Constant	8.33 (4)
3930	Site 2		at 8 mph	5.24 (4)
3931	Site 3			14.14 (4)(5)
3932	Site 1	11/25/77 ✓✓	Not Constant	11.25
3933	Site 2		at 12 mph	5.55
3934	Site 3			25.08 (2)(6)
3939	Site 1	11/29/77 ✓✓	WSW at	5.48 (4)
3940	Site 2		20 mph	4.11
3941	Site 3			31.92
3942	Site 1	12/1/77 ✓✓	WNW at	5.04 (4)
3943	Site 2		13 mph	7.22
3944	Site 3			50.31
[illegible]9	Site 1	12/5/77 ✓✓	WNW at	4.29
[illegible]50	Site 2		8 mph	2.09 (4)(5)
3951	Site 3			21.42 (4)(5)

(1) Filter contaminated with transducer ink.
(2) Some particulate appeared to have been lost during shipping and handling prior to receipt at the laboratory.
(3) Sample invalid, filter was not properly centered during sampling.
(4) Evidence of gasket leak during sampling.
(5) Filter torn or damaged.
(6) Fingerprints on outside of filter.
(7) Filter improperly folded.
(8) Some filter damage, but all pieces seem to be present.

Certified Jay C. Lyndes

cc: MPC - Colstrip (1)
Steve Simonds

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

6 day schedule

Report of: Particulate Matter and Water Soluble Sulfate
Collected on High Volume Air Sample Filters
Colstrip Air Monitoring

Date December 23, 1977
Job Number 64-53
Sheet 1 of 2

Report to: THE MONTANA POWER COMPANY (5)
ATTN: DICK MYOTT
P O BOX 1338
BUTTE MT 59701

Sample Identification:

Summarized below are the results of particulate matter and water soluble sulfate determination on samples which were collected on high volume air sample filters on the dates shown. The particulate matter samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The water soluble sulfates were determined in accordance with the National Air Sampling Network, Division of Air Pollution, U.S. Public Health Standard procedures. The results cover a 24-hour period.

TEST RESULTS:

ab No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air
8896	Site 1	11/3/77 ✓✓	Southerly	31.13 (3)(4)(5)
8897	Site 2		at 13 mph	5.78 (4)(5)
8898	Site 3			91.56 ✓
	Site 4		Sample invalid, no flow data recorded	
8905	Site 1	11/9/77 ✓✓	WSW at	50.51 (4)
8906	Site 2		9 mph	12.66
8907	Site 3			234.51 (4) ✓
8908	Site 4			23.40 (1)(4)(6)
8915	Site 1	11/15/77 ✓✓	West at	6.78 (4)
8916	Site 2		13 mph	10.31 (1)(4)
8917	Site 3			46.90 (1)(2)(4)
8918	Site 4			22.24 (4)
8925	Site 1	11/21/77 ✓✓	SSE at	18.55
8926	Site 2		9 mph	5.08 (6)
8927	Site 3			42.62
8928	Site 4			17.03
8935	Site 1	11/27/77 ✓✓	WSW at	3.16 (4)
8936	Site 2		10 mph	1.90
8937	Site 3			28.50 (6)
938	Site 4			5.98 (5)

Northern Testing Laboratories, Inc.

Particulate Matter and Water Soluble Sulfate

December 23, 1977
Job No. 64-53
Sheet 2 of 2

The Montana Power Co.
Butte, MT

ab No.	Location	Dates Covered	Wind Velocity and Direction	Particulate Matter Micrograms per Cubic Meter, Air
3945	Site 1	12/3/77 ✓✓	WSW at	3.21
3946	Site 2		15 mph	2.97
3947	Site 3			17.53
3948	Site 4			4.55

(1) Filter contaminated with transducer ink.
(2) Some particulate appeared to have been lost during shipping and handling prior to receipt at the laboratory.
(3) Sample invalid, filter was not properly centered during sampling.
(4) Evidence of gasket leak during sampling.
(5) Filter received torn or damaged.
(6) Fingerprints on outside of filter.

Certified Jay C. Lyndes

cc: MPC - Colstrip (1)
Steve Simonds

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date November 29, 1976
Job Number 69-147-1
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY (3)
P O BOX 67
COLSTRIP MT 59323

3000 Hi Vol

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Particulate Matter, Micrograms/cubic meter, air
0001	Site 1	10/9/76	88.31
0002	Site 2	"	70.68
0003	Site 3	"	589.89
0004	Site 4	"	254.82
0005	Site 6	"	72.21
0006	Site 1	10/15/76	402.92
0007	Site 2	"	203.23
0008	Site 3	"	485.62
0009	Site 4	"	105.99
0010	Site 6	"	111.14
0011	Site 1	10/21/76	99.18
0012	Site 2	"	45.61

Northern Testing Laboratories, Inc.

Particulate Matter

Western Energy Co.
Colstrip, MT

November 29, 1976
Job No. 69-147-1
Sheet 2 of 2

Lab No.	Location	Date Sampled	Particulate Matter, Micrograms/cubic meter, air
0013	Site 3	10/21/76	348.37
0014	Site 4	"	106.36
0015	Site 6	"	206.58
0016	Site 1	10/27/76	34.02
0017	Site 2	"	16.31
0018	Site 3	"	129.34
0019	Site 4	"	22.07
0020	Site 6	"	14.41

Certified Larry G. O'Dell

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected On High
Volume Air Sample Filters

Date December 29, 1976
Job Number 69-147-1
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (3)
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

Summarized below are the results of particulate matter samples which were colected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Particulate Matter, Micrograms/cubic meter, air
0874	Site 1	11/2/76	132.14
0875	Site 2	"	127.54*
0876	Site 3	"	531.02
0877	Site 4	"	67.30
0878	Site 6	"	52.08
0879	Site 1	11/8/76	108.89
0880	Site 2	"	111.84
0881	Site 3	"	385.99
0882	Site 4	"	84.60
0883	Site 6	"	81.65
0884	Site 1	11/14/76	502.31
0885	Site 2	"	58.89
0886	Site 3	"	261.34*
0887	Site 4	"	56.32
0888	Site 6	"	31.04
0889	Site 1	11/20/76	57.60
0890	Site 2	"	47.85
0891	Site 3	"	558.99*
0892	Site 4	"	41.53
0893	Site 6	"	87.30
0894	Site 1	11/26/76	16.93
0895	Site 2	"	16.99
0896	Site 3	"	84.04
0897	Site 4	"	9.94
0898	Site 6	"	34.23

*Filter received torn

Certified

mG

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected on High Volume Air Sample Filters

Date January 28, 1977
Job Number 69-147-1
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (3)
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Particulate Matter, Micrograms/cubic meter, air
1470	Site 1	12/2/76	24.35
1471	Site 2	"	32.33
1472	Site 3	"	504.23
1473	Site 4	"	253.73
1474	Site 6	"	57.60
1475	Site 1	12/8/76	48.65
1476	Site 2	"	54.78
1477	Site 3	"	60.24
1478	Site 4	"	36.81
1479	Site 6	"	17.55
1480	Site 1	12/13/76	42.15
1481	Site 2	"	101.22
1482	Site 3	"	138.28
1483	Site 4	"	42.70
1484	Site 6	"	120.36
1485	Site 1	12/20/76	303.91
1486	Site 2	"	45.64
1487	Site 3	"	225.14
1488	Site 4	"	232.50
1489	Site 6	"	110.42
1490	Site 1	12/26/76	89.20
1491	Site 2	"	116.86
1492	Site 3	"	861.68
1493	Site 4	"	25.77
1494	Site 6	"	529.91

G.M.

Site 1	67.03
" 2	62.53
" 3	241.11
" 4	75.10
" 6	93.43

Certified Gary G. O'Dell

NTL—110

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected on High Volume Air Sample Filters

Date January 28, 1977
Job Number 69-147-1
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (3)
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Particulate Matter, Micrograms/cubic meter, air
1470	Site 1	12/2/76	24.35
1471	Site 2	"	32.33
1472	Site 3	"	504.23
1473	Site 4	"	253.73
1474	Site 6	"	57.60
1475	Site 1	12/8/76	48.65
1476	Site 2	"	54.78
1477	Site 3	"	60.24
1478	Site 4	"	36.81
1479	Site 6	"	17.55
1480	Site 1	12/13/76	42.15
1481	Site 2	"	101.22
1482	Site 3	"	138.28
1483	Site 4	"	42.70
1484	Site 6	"	120.36
1485	Site 1	12/20/76	303.91
1486	Site 2	"	45.64
1487	Site 3	"	225.14
1488	Site 4	"	232.50
1489	Site 6	"	110.42
1490	Site 1	12/26/76	89.20
1491	Site 2	"	116.86
1492	Site 3	"	861.60
1493	Site 4	"	25.77
1494	Site 6	"	529.91

GM

Site 1	67.03
" 2	62.53
" 3	241.11
" 4	75.10
" 6	93.43

Copy

see previous page

Certified Gary G. O'Dell

NIL—110

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date February 24, 1977
Job Number 69-147-1
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY (1)
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Particulate Matter, Micrograms/cubic meter, air
[illegible]	Site 1	1/1/77	11.29
[illegible]	Site 2	"	5.28
[illegible]	Site 3	"	63.92
[illegible]	Site 4	"	23.86
[illegible]	Site 6	"	75.70
[illegible]	Site 1	1/7/77	27.54
[illegible]	Site 2	"	87.60
[illegible]	Site 3	"	99.26
[illegible]	Site 4	"	16.44
[illegible]	Site 6	"	40.06
[illegible]	Site 1	1/13/77	17.91
[illegible]	Site 2	"	85.58
[illegible]	Site 3	"	96.19
[illegible]	Site 4	"	14.91
[illegible]	Site 6	"	55.46
[illegible]	Site 1	1/19/77	14.42
[illegible]	Site 2	"	45.70
[illegible]	Site 3	"	44.04
[illegible]	Site 4	"	4.79
[illegible]	Site 6	"	14.72

Northern Testing Laboratories, Inc.

Particulate Matter Collected On
High Volume Air Sample Filters

February 24, 1977
Job No. 69-147-1
Sheet 2 of 2

Western Energy Company
Colstrip, MT

Lab No.	Location	Date Sampled	Particulate Matter, Micrograms/cubic mater, air
2076	Site 1	1/25/77	17.91
2077	Site 2	"	46.01
2078	Site 3	"	195.75
2079	Site 4	"	15.15
2080	Site 6	"	64.90
2081	Site 1	1/31/77	104.17
2082	Site 2	"	43.13
2083	Site 3	"	139.50
2084	Site 4	"	80.92
2085	Site 6	"	34.11

cc: Western Energy Co. (2)
ATTN: Art Neill
Butte, MT

Certified Gary G. O'Dell

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected on High Volume Air Sample Filters

Date March 28, 1977
Job Number 69-147-1
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: WEST BOETTGER
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Particulate Matter, Micrograms/cubic meter, air
			~~G.M.~~ ~~Site~~
2460	Site 1	2/6/77	27.24
2461	Site 2	"	31.53
2462	Site 3	"	222.16
2463	Site 4	"	24.60
2464	Site 6	"	48.83
2465	Site 1	2/12/77	14.06*
2466	Site 2	"	18.22
2467	Site 3	"	85.18
2468	Site 4	"	18.71
2469	Site 6	"	29.57
2470	Site 1	2/18/77	35.89
2471	Site 2	"	64.23
2472	Site 3	"	111.28
2473	Site 4	"	218.95
2474	Site 6	"	143.12
2475	Site 1	2/24/77	9.08
2476	Site 2	"	15.15
2477	Site 3	"	67.60
2478	Site 4	"	9.51
2479	Site 6	"	32.45

Site	G.M.
1	18.80
2	27.34
3	109.2
4	31.29
6	50.89

*Motor did not shut off. Sampler ran 58 hours, results corrected for extra time run.

cc: Western Energy Co. - Butte (2)
Art. Neill

Certified Gary G. O'Dell

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date May 12, 1977
Job Number 69-147-1
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY (1)
ATTN: MR. WEST BOETTGER
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
4127	Site 1	3/2/77	5	69.79
4128	Site 2		2	46.55
4129	Site 3		7	$\boxed{740.6}$
4130	Site 4		2	52.47
4131	Site 6		2	72.50
4132	Site 1	3/8/77*	5+	157.6
4133	Site 2	*	7-	144.5
4134	Site 3	*	7+	560.3
4135	Site 4	*	7-	92.05
4136	Site 6	*	7	239.0
4137	Site 1	3/14/77	2	24.91
4138	Site 2		2	27.65
4139	Site 3		3	227.7
4140	Site 4		2-	33.30
4141	Site 6		2-	20.05
4142	Site 1	3/20/77	5	42.58
	Site 2**			
4143	Site 3		2	144.1
4144	Site 4		2	51.33
4145	Site 6		2	65.02

G.M.	Site
38.40	1
48.40⊕	2
198.8	3
39.80	4
52.51	6

⊕ Based on 4 samples only

Western Energy Company
Colstrip, MT

May 12, 1977
Job No. 69-147-1
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
4146	Site 1	3/26/77	2-	7.16
4147	Site 2		3	29.50
4148	Site 3		2-	22.79
4149	Site 4		2	12.10
4150	Site 6		2	17.67

*Field personnel reported a dust storm with 40 mph winds on 3/8/77

**Starting switch did not operate, no sample was taken.

Certified Gary G. O'Dell

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected on High Volume Air Sample Filters

Date June 7, 1977
Job Number 69-147-1
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: MR. WEST BOETTGER
P O BOX 67
COLSTRIP MT 59323

SAMPLE IDENTIFICATION:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
4556	1	4/1/77	3-	44.64
4557	2		2	36.11
4558	3		2	74.02
4559	4		2-	30.90
4560	6		2	19.25
4561	1	4/7/77	7	110.1
4562	2		7-	61.56
4563	3		3	131.1
4564	4		2	70.88
4565	6		9	66.89
4566	1	4/13/77	5++	83.87
4567	2		3	74.43
4568	3		4	256.6
4569	4		7	422.5
4570	6		3-	41.63
4571	1	4/19/77	5	150.6
4572	2		5+	69.83
4573	3		9	114.2
4574	4		7-	86.82
4575	6		5	109.2
4576	1	4/25/77	7	309.0
4577	2		7	96.75
4578	3		4	508.0
4579	4		7	330.8
4580	5		9	118.6
4581	6		9	105.0

G.M.	Site
44.49	1
64.52	2
170.6	3
121.6	4
57.24	6

cc: Western Energy Co. Butte ATTN: Art Neill

Certified Gary G. O'Dell

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date June 28, 1977
Job Number 69-147-1
Sheet 1 of 2

Report to:
WESTERN ENERGY COMPANY (1)
ATTN: MR. WEST BOETTGER
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B. pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
5151	Site 1	5/1/77	5	329.25
5152	Site 2	"	5	235.50
5153	Site 3	"	9-	212.51
5154	Site 4	"	9	342.31
5155	Site 5	"	7-	320.17
5156	Site 6	"	8	277.07
5157	Site 1	5/7/77	5-	58.55
5158	Site 2	"	2	64.07
5159	Site 3	"	2-	144.21
5160	Site 4	"	9	110.06
5161	Site 5	"	2	71.74
5162	Site 6	"	5--	36.24
5163	Site 1	5/13/77	7-	138.20
5164	Site 2	"	3	186.94
5165	Site 3	"	4	664.13
5166	Site 4	"	4/7	152.61
5167	Site 5	"	9-	73.88
5168	Site 6	"	7	207.23

Northern Testing Laboratories, Inc.

Western Energy Company
Colstrip, Mt

June 28, 1977
Job No. 69-147-1
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
5169	Site 1	5/19/77	2	23.73
5170	Site 2	"	2	31.64
5171	Site 3	"	3	63.89
5172	Site 4	"	2	28.88
5173	Site 5	"	1	5.27
5174	Site 6	"	2	32.86
5175	Site 1	5/25/77	2	74.43
5176	Site 2	"	3/5	85.41
5177	Site 3	"	3	113.67
5178	Site 4	"	2	55.18
5179	Site 5	"	2	43.41
5180	Site 6	"	3	94.60
5181	Site 1	5/31/77	3+	57.33
5182	Site 2	"	7+	173.08
5183	Site 3	"	4	373.39
5184	Site 4	"	7	212.20
5185	Site 5	"	5-	31.02
5186	Site 6	"	7	253.40

Certified Larry G. O'Dell

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date July 19, 1977
Job Number 69-147-1
Sheet 1 of 2

Report to: Western Energy Company (1)
ATTN: Mr. West Boettger
P O Box 67
Colstip, MT 59323

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
5483	Site 1	6/6/77	7	128.14
5484	Site 2	"	5	32.62
5485	Site 3	"	3	308.28
5486	Site 4	"	7	141.02
5487	Site 5	"	4/7	124.03
5488	Site 6	"	9	118.45
5489	Site 1	6/12/77	2-	24.83
5490	Site 2	"	2-	24.16
5491	Site 3	"	4	212.75
5492	Site 4	"	3	35.38
5493	Site 5	"	2-	14.78
5494	Site 6	"	2-	18.88
5495	Site 1	6/18/77	2	36.48
5496	Site 2	"	2	31.21
	Site 3	Site moved		-
5497	Site 4	6/18/77	2-	57.57
5498	Site 5	"	2-	31.64
5499	Site 6	"	2-	24.22

Northern Testing Laboratories, Inc.

Western Energy Company
Colstrip, MT

July 19, 1977
Job No. 69-147-1
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
5500	Site 1	6/24/77	7	93.68
5501	Site 2	"	9	89.55
5502	Site 4	"	9	76.52
5503	Site 5	"	5	39.85
5504	Site 6	"	5	79.28
5505	Site 1	6/30/77	5	53.95
5506	Site 2	"	5	63.76
5507	Site 4	"	5	68.98
5508	Site 5	"	9	42.49
5509	Site 6	"	9	71.92

Site	G.M.
1	56.71
2	42.61
4	68.57
5	39.67
6	49.88

Certified ____________________

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date August 30, 1977
Job Number 69-147-1
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY (1)
ATTN: MR. WEST BOETTGER
P O BOX 67
COLSTRIP, MT 59323

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
37	Site 1	7/8/77	2	46.54
38	Site 2		2	68.91
39	Site 4		2	43.16
40	Site 5		1	20.91
41	Site 6		3	88.47
42	Site 1	7/13/77	2	86.57
43	Site 2		2	96.75
44	Site 4		4	118.27
45	Site 5		9	41.51
46	Site 6		2	59.29
47	Site 1	7/19/77	5	74.68
48	Site 2		7	160.33
49	Site 4		7	441.32
50	Site 5		5	40.47
51	Site 6		7	429.86

Northern Testing Laboratories, Inc.

Western Energy Company
Colstrip, Montana

August 30, 1977
Job No. 69-147-1
Sheet 2 of 2

ab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter Micrograms/cubic meter, air
552	Site 1	7/24/77	4	164.13
553	Site 2		2	63.46
554	Site 4		5	89.21
555	Site 5		8	68.49
556	Site 6		2	48.19
557	Site 1	7/30/77	5	29.49
558	Site 2		5	93.81
559	Site 4		5	28.33
560	Site 5		2	18.88
561	Site 6		5	28.57

Site	G.M.
1	68.02
2	91.36
4	89.35
5	34.00
6	79.14

Certified____________________

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill

Montana Power Co. - Butte (3)
ATTN: Dick Myott

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date September 29, 1977
Job Number 69-147-1
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY (1)
ATTN: MR. WEST BOETTGER
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air samples filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
7477	Site 1	8/5/77	3	29.2
7478	Site 2		4	47.70
7479	Site 3*		4	72.53*
7480	Site 4		2	42.43
7481	Site 5		2	13.06
7482	Site 6		2	32.31
7483	Site 1	8/11/77	2	39.12
7484	Site 2		7	71.25
7485	Site 3*		7	137.71*
7486	Site 4		7	175.54
7487	Site 5		1	9.38
7488	Site 6		5	42.12
7489	Site 1	8/17/77	9	65.24
7490	Site 2		3	58.92
7491	Site 3*		7	117.66*
7492	Site 4		5	56.59
7493	Site 5		5	16.37
7494	Site 6		3	49.66

Western Energy Company
Colstrip, MT

September 29, 1977
Job No. 69-147-1
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
7495	Site 1	8/23/77	3	46.97
7496	Site 2		2	47.15
7497	Site 3*		3	77.87*
7498	Site 4		9	47.27
7499	Site 5		2	24.34
7500	Site 6		2	31.39
7501	Site 1	8/29/77	2	23.42
7502	Site 2		3	46.60
7503	Site 3*		3	59.72*
7504	Site 4		9	67.01
7505	Site 5		2	6.19
7506	Site 6		3	43.23
7507	Site 1	8/31/77	2	11.77
7508	Site 2		2	10.36

*Flow controller appeared to be malfunctioning. We have contacted the field personnel regarding this problem. They are in the process of repairing the equipment.

Certified ______________________

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill

MPC - Butte (3)
ATTN: Dick Myott

NORTHERN TESTING LABORATORIES, INC.
Great Falls, Billings, Montana - Boise, Idaho - Gillete, Wyoming

WESTERN ENERGY COMPANY
HI VOLUME AIR SAMPLER DATA TRANSMITTAL INFORMATION
69-147

Filter Number (Use in Numerical Order)	Site Number	Sampling Period Begin Date	Begin Time	End Date	End Time	Date Site Serviced	Data Loss or Discrepancies
5266	1	8-5-77	0	8-5-77	2400	8-9-77	
5267	2	8-5-77	0	8-5-77	2400	8-9-77	368 COAL HAULERS PAST SITE. ~~DRAGLINE DIGGING NE~~ BY.
5268	3	8-5-77	0	8-5-77	2400	8-9-77	CONTROLER NOT WORK
5269	4	8-5-77	0	8-5-77	2400	8-9-77	250 COAL HAULERS PAST SITE.
5270	5	8-5-77	0	8-5-77	2400	8-9-77	
5271	6	8-5-77	0	8-5-77	2400	8-9-77	368 COAL HAULERS PAST SITE.
5272	1	8-11-77	0	8-11-77	2400	8-12-77	
5273	2	8-11-77	0	8-11-77	2400	8-12-77	226 COAL HAULER PAST SITE. ~~DRAGLINE DIGGING~~
5274	3	8-11-77	0	8-11-77	2400	8-12-77	NEAR BY. CONTROLER NOT WORKIN
5275	4	8-11-77	0	8-11-77	2400	8-12-77	226 COAL HAULERS PAST BY SITE
5276	5	8-11-77	0	8-11-77	2400	8-12-77	
5277	6	8-11-77	0	8-11-77	2400	8-12-77	226 COAL HAULER PAST SITE
5278	1	8-17-77	0	8-17-77	2400	8-18-77	
5279	2	8-17-77	0	8-17-77	2400	8-18-77	
5280	3	8-17-77	0	8-17-77	2400	8-18-77	172 COAL HAULERS PAST SITE
5281	4	8-17-77	0	8-17-77	2400	8-18-77	670 COAL HAULERS PAST SITE
5282	5	8-17-77	0	8-17-77	2400	8-18-77	
5283	6	8-17-77	0	8-17-77	2400	8-18-77	498 COAL HAULERS PAST SITE

Performed By:

NORTHERN TESTING LABORATORIES, INC.
Great Falls, Billings, Montana - Boise, Idaho - Gillete, Wyoming

WESTERN ENERGY COMPANY
HI VOLUME AIR SAMPLER DATA TRANSMITTAL INFORMATION
69-147

Filter Number (Use in Numerical Order)	Site Number	Sampling Period Begin Date	Sampling Period Begin Time	Sampling Period End Date	Sampling Period End Time	Date Site Serviced	Data Loss or Discrepancies
5284	1	8-23-77	0	8-23	2400	8-24-77	
5285	2	8-23	0	8-23	2400	8-24-77	DRAGLINE RECLAM. NEXT TO SITE.
5286	3	8-23	0	8-23	2400	8-24-77	440 COAL HAULER PAST SITE. (CONTRO HAU
5287	4	8-23	0	8-23	2400	8-24-77	170 COAL HAULER TRIPS PAST SITE.
5288	5	8-23	0	8-23	2400	8-24-77	
5289	6	8-23	0	8-23	2400	8-24-77	440 COAL HAULER TRIPS PAST SITE.
5290	1	8-29	0	8-29	2400	8-30-77	
5291	2	8-29	0	8-29	2400	8-30-77	DRAGLINE RECLAMA NEXT TO SITE.
5292	3	8-29	0	8-29	2400	8-30-77	430 COAL HAULER PAST SITE. (CONTROL HAUL
5293	4	8-29	0	8-29	2400	8-30-77	182 COAL HAULER TRIPS PAST SITE.
5294	5	8-29	0	8-29	2400	8-30-77	
5295	6	8-29	0	8-29	2400	8-30-77	430 COAL HAULER PAST SITE.
5296	1	8-31	0	8-31	2400	8-1-77	
5297	2	8-31	0	8-31	2400	9-1-77	DRAGLINE RECLAMA NEXT TO SITE.
	3						
	4						
	5						
	6						

Performed By:

2

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date November 10, 1977
Job Number 69-147-1
Sheet 1 of 2

Report to:
WESTERN ENERGY COMPANY (1)
ATTN: MR. WEST BOETTGER
P O BOX 67
COLSTRIP, MT 59323

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
7659	Site 1	9/4/77	3	43.96
7660	Site 2	"	2	48.07
7935	Site 3	"	4	138.44*
7936	Site 4	"	2	24.16
7937	Site 5	"	2	18.82
7938	Site 6	"	2	22.99
7665	Site 1	9/10/77	2	35.87
7666	Site 2	"	2	27.35
7939	Site 3	"	4	106.38*
7940	Site 4	"	2	19.68
7941	Site 5	"	3	26.12
7942	Site 6	"	2	31.94
7671	Site 1	9/16/77	2	17.60
7672	Site 2	"	9	188.29
7943	Site 3	"	4	143.90*
7944	Site 4	"	3	46.60
7945	Site 5	"	3	51.69
7946	Site 6	"	3	48.56

Northern Testing Laboratories, Inc.

Western Energy Company
Colstrip, Montana

November 10, 1977
Job No. 69-147-1
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter Micrograms/cubic meter, air
7677	Site 1	9/22/77	2	29.61
7678	Site 2	"	3	34.27
7947	Site 3	"	7	112.63
7948	Site 4	"	3	28.57
7949	Site 5	"	3	22.50
7950	Site 6	"	3	22.69
7683	Site 1	9/28/77	5	78.72
7684	Site 2	"	7	149.11
7951	Site 3	"	3	71.98
7952	Site 4	"	9	66.28
7953	Site 5	"	3	28.08
7954	Site 6	"	3	48.80

*The flow controller was malfunctioning. The field notes indicate that it was repaired on 9/19/77.

Certified

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill
MPC - Butte (3)
ATTN: Dick Myott

2

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date November 10, 1977
Job Number 69-147-1
Sheet 1 of 1

Report to:
WESTERN ENERGY COMPANY (1)
ATTN: MR. WEST BOETTGER
P O BOX 67
COLSTRIP, MT 59323

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
8183	Site 1	10/4/77	2	25.32
8184	Site 2	"	3	25.75
	Sites 3 through 6 not received for 10/4/77			
8189	Site 1	10/10/77	5	14.29
8190	Site 2	"	5	26.67
8198	Site 3	"	2	37.95
8199	Site 4	"	5	58.68
8200	Site 5	"	1	14.10
8201	Site 6	"	5	76.70
8195	Site 1	10/16/77	2	25.51**
8196	Site 2	"	1	10.55*
8202	Site 3	"	4	131.51***
8203	Site 4	"	5	33.72
8204	Site 5	"	5	29.25
8205	Site 6	"	2	52.67

*Invalid - Motor Malfunction
**Invalid - Timer Unplugged
***Invalid - Malfunction in Flow Controller

Certified

cc: MPC - Butte (3)
Dick Myott
Western Energy Co. - Butte (2)
Art Neill

1cc77

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date November 14, 1977
Job Number 69-147-1
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: MR. WEST BOETTGER
P O BOX 67
COLSTRIP, MT 59323

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

ab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
8478	Site 1	10/22/77	2	27.77
8479	Site 2	"	2	28.76
8489	Site 3	"	9	61.43
8490	Site 4	"	2	35.93
8491	Site 5	"	5	34.87 (1)
8492	Site 6	"	2	28.52
8483	Site 1	10/28/77	4	121.03
8484	Site 2	"	7	142.24 (3)
8493	Site 3	"	4	240.34 (2)
8494	Site 4	"	4	179.83 (2)
8495	Site 5	"	5	20.60
8496	Site 6	"	5	71.00

(1) Filter received torn.
(2) Particulate was dislodged from filter in shipment.
(3) Flow controller malfunctioned during run.

Certified

cc: MPC - Butte:
Dick Myott (3)
Art Neill (2)

Blngs
15

WESTERN ENERGY COMPANY

GENERAL OFFICES: 40 EAST BROADWAY, BUTTE, MONTANA 59701

January 20, 1978

Mr. Richard L. Juntunen
Reclamation Division
Department of State Lands
Capitol Station
Helena, MT 59601

Dear Mr. Juntunen:

Attached are two copies of Western Energy's Hi-Vol and Dustfall data for the month of November, 1977. I am sure you will notice the number of invalidated hi-vol samples. They are apparently the result of careless sampling procedures. We believe the problem is now corrected.

Sincerely,

Michael R. Grende

Michael R. Grende
Supervisor, Lands & Permits

MRG/gh

Attachments (2)

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date January 12, 1978
Job Number 69-147-1
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY (1)
ATTN: MR. CHRIS CULL
P O BOX 67
COLSTRIP, MT 59323

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

ab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
9006	Site 1	11/3/77	9	62.5
9007	Site 2		9	Invalid (96) e,d
8982	Site 3		7	Invalid (18) b,c,e,d
8983	Site 4		5	83.2 c,e
8984	Site 5		5	58.9
8985	Site 6		5	Invalid (53) b,c
9012	Site 1	11/9/77	7	183. c
9013	Site 2		7	186. c,e
8986	Site 3		3	Invalid (13) d
8987	Site 4		10	162. c
8988	Site 5		3	Invalid (45) d
8989	Site 6		2	52.5
9018	Site 1	11/15/77	2	19.0
9019	Site 2		2	Invalid (27) d
8990	Site 3		3	51.8 c
8991	Site 4		2	18.6 f
8992	Site 5		2	Invalid (13) d
8[illegible]3	Site 6		2	38.5 c,e

Values reported in parenthesis are calculated using the actual weight gain of the filter and the flow expected from a correctly operating flow controller.

Northern Testing Laboratories, Inc.

Western Energy Company
Colstrip, Montana

January 12, 1978
Job No. 69-147-1
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter Micrograms/cubic meter, air
9024	Site 1	11/21/77	10	30.3 e,d
9025	Site 2		7	Invalid (47) d
8994	Site 3		2	Invalid (7) d
8995	Site 4		3	Invalid (26) d
8996	Site 5		3	Invalid (33) d
8997	Site 6		10	58.4 e
9030	Site 1	11/27/77	1	Invalid (3) d
9031	Site 2		1	2.45
8998	Site 3		3	24.5 e
8999	Site 4		2	6.01 d
9000	Site 5		2	Invalid (16) b,d
9001	Site 6		2	12.3
9036	Site 1	12/3/77	2	5.70
9037	Site 2		2	5.70
9002	Site 3		3	13.1
9003	Site 4		1.	1.23
9004	Site 5		2	1.10 d
9005	Site 6		3	7.66

Values reported in parenthesis are calculated using the actual weight gain of the filter and the flow expected from a correctly operating flow controller.

See attached sheet for footnotes.

Certified

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill

Montana Power Co. - Butte (3)
ATTN: Dick Myott

FOOTNOTES FOR HIGH VOLUME AIR SAMPLE FILTER REPORTS

a. The filter was torn or damaged and pieces were missing when it was received in the laboratory.

b. The filter was improperly centered resulting in particulate loss around the edges of the filter while sampling.

c. It appears that some particulate was lost in handling prior to receipt of the sample in the laboratory.

d. The flow controller malfunctioned during sampling.

e. The timer was mis-set and sampler did not operate for 24 hours. The particulate concentrations reported were calculated using the actual elapsed sampling time.

f. The transducer chart was badly smeared with ink. Flow and timing data could not be read.

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date January 27, 1978
Job Number 69-147-1
Sheet 1 of 2

Report to:
WESTERN ENERGY COMPANY (1)
ATTN: MR. CHRIS CULL
P O BOX 67
COLSTRIP, MT 59323

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

ab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air	
9599	Site 1	12/9/77	4	37.7	
9600	Site 2	"	3	17.7	
9623	Site 3	"	2	16.9	c
9624	Site 4	"	10	13.6	c
9625	Site 5	"	3	39.7	c
9626	Site 6	"	2	13.9	
9605	Site 1	12/15/77	2	3.83	
9606	Site 2	"	3	3.00	
9627	Site 3	"	4	27.9	
9628	Site 4	"	2	4.29	
9629	Site 5	"	3	6.25	c
9630	Site 6	"	4	12.4	
9611	Site 1	12/21/77	4	92.1	
9612	Site 2	"	2	102.	
9631	Site 3	"	4	Invalid (450.)	c
9632	Site 4	"	2	15.7	
9633	Site 5	"	5	18.3	
9634	site 6	"	3	46.7	d

Northern Testing Laboratories, Inc.

Western Energy Company
Colstrip, Montana

January 27, 1978
Job No. 69-147-1
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter Micrograms/cubic meter, air
9617	Site 1	12/27/77	3	17.2
9618	Site 2	"	2	24.6
9635	Site 3	"	5	13.6
9636	Site 4	"	1	4.29
9637	Site 5	"	3	7.30
9638	Site 6	"	4	123. c

Values reported in parenthesis are calculated using the actual weight gain of the filter and the flow expected from a correctly operating flow controller.

c. It appears that some particulate was lost in handling prior to receipt of the sample in the laboratory.

d. The flow controller malfunctioned during sampling.

G. M.

Site 1 – 16.7
2 – [illegible] 15.0
3 – 17.0
4 – 5.5
5 – 13.5
6 – 20.1

cc: Art Neill - Western Energy Co. (2)
Butte, MT
Dick Myott - Montana Power Co. (3)
Butte, MT

Certified Jay C. Lyndes

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date March 13, 1978
Job Number 69-147-1
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY (1)
ATTN: MR. CHRIS CULL
P O BOX 67
COLSTRIP, MT 59323

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
10271	Site 1	1/2/78	3	23.6
10272	Site 2		2	16.0 C
10273	Site 3		7	53.6
10274	Site 4		1	14.0
10275	Site 5		1	4.85
10276	Site 6		3	147. C
10277	Site 1	1/8/78	3	44.4
10278	Site 2		2	10.4
10279	Site 3		3	54.1
10280	Site 4		5	57.3
10281	Site 5		3	30.7
10282	Site 6		2	9.84
10283	Site 1	1/14/78	7	63.2
10284	Site 2		3	113.
10285	Site 3		9	64.5
10286	Site 4		10	1080.
[illegible]7	Site 5		7	57.3
10288	Site 6		10	94.2

Northern Testing Laboratories, Inc.

Western Energy Company
Colstrip, Montana

March 13, 1978
Job No. 69-147-1
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter Micrograms/cubic meter, air
10289	Site 1	1/20/78	7	314.
10290	Site 2		3	92.5
10291	Site 3		7	2150. C
10292	Site 4		1	13.5
10293	Site 5		2	21.2
10294	Site 6		4	143. C
10295	Site 1	1/26/78	3	28.6
10296	Site 2		3	23.6
10297	Site 3		3	54.5
10298	Site 4		7	40.6 C
10299	Site 5		2	11.5
[illegible]300	Site 6		2	10.9
10301	Site 1	2/1/78	3	31.8
10302	Site 2		2	27.7
10303	Site 3		2	9.3
10304	Site 4		3	36.9
10305	Site 5		3	22.0
10306	Site 6		2	13.2
10307	Site 1	2/7/78	7	63.2
10308	Site 2		7	53.6
10309	Site 3		5	38.8
10310	Site 4		3	21.4
10311	Site 5		3	30.4
10312	Site 6		3	14.9

C It appears that some particulate was lost in handling prior to receipt of the sample in the laboratory.

G.M. (Jim)

Site 1 - 56.9
2 - 33.3
3 - 117.0
4 - 54.4
5 - 18.3
6 - 46.3

Certified

cc: Western Energy Company - Butte (2)
ATTN: Art Neill

Montana Power Co. - Butte (3)
ATTN: Dick Myott

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date March 28, 1978
Job Number 69-147-1
Sheet 1 of 1

Report to:
WESTERN ENERGY COMPANY (1)
ATTN: MR. CHRIS CULL
P O BOX 67
COLSTRIP, MT 59323

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
10210	Site 1	2/13/78	2	17.7
10211	Site 2		2	22.3
10212	Site 3		3	53.7
10213	Site 4		2	30.6
10214	Site 5		2	17.0
10215	Site 6		2	15.2
10216	Site 1	2/19/78	2	8.98 E
10217	Site 2		3	10.3
10218	Site 3		2	17.5
10219	Site 4		2	20.4 E
10220	Site 5		1	8.53
10221	Site 6		3	15.4
10222	Site 1	2/25/78	9	32.3
10223	Site 2		3	18.6
10224	Site 3		3	35.0
10225	Site 4		2	16.4
26	Site 5		2	10.7
10227	Site 6		1	8.77 E

G. M. - Feb.

Site 1 - 25.3
2 - 22.9
3 - 26.0
4 - 24.1
5 - 16.0
6 - 13.2

E. The timer was mis-set and sampler did not operate for 24 hours. The particulate concentrations reported were calculated using the actual elapsed sampling time.

Certified

cc: Western Energy Co.-Butte (2)
Art Neill

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Western Energy Air Quality Monitoring Sites Quarterly Calibration and Quality Assurance Audit

Date April 12, 1978
Job Number 69-147-1
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY (2)
ATTN: CHRIS CULL
P O BOX 67
COLSTRIP MT 59323

On March 27, 1978, our personnel conducted a quality assurance and calibration audit at the Western Energy Air Quality Monitoring Stations in the Colstrip area. The results are as follows:

TEST RESULTS:

Calibration Results and Quality Assurance Recommendations:

1. Since the last calibration, the high volume air samplers have been repaired, calibrated, and serviced by Montana Power Company personnel. The samplers designated WE 1, WE 2, WE 3, WE 4, WE 5, and WE 6 were operating properly at the time of the audit.

2. The flow controllers were calibrated and adjusted to 65.1 cubic meters per hour at reference conditions. The flow rates as found were as follows:

Sampler	ΔP (Inches Water)	Qref (Cubic Meters/Hour)
WE 1	5.4	66.3
WE 2	5.2	65.1
WE 3	6.0	69.9
WE 4	6.5	72.7
WE 5	6.3	71.7
WE 6	5.6	67.5

3. The appearance of the sites and the quality of the samples and supporting data received by the laboratory have improved significantly since the last audit. The field personnel appear to be operating the sampling stations in a conscientious and careful manner.

4. We infer from this audit that the flow data obtained at sites 1, 4, 5, and 6 since the last audit were accurately measured and recorded. Since the flow controllers at sites 2 and 3 have been repaired, the flow data obtained at those sites have also been inferred to be accurately measured and recorded.

Should you have any questions or require additional information, please contact us at your convenience.

Very truly yours,

Jerold M. Bidwell

Jerold M. Bidwell, P. E.

JMB:vh

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill

Montana Power Co. - Butte (3)
ATTN: Dick Myott

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date April 28, 1978
Job Number 69-147-12
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY (1)
ATTN: MR. CHRIS CULL
P O BOX 67
COLSTRIP, MT 59323

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

ab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
0787	Site 1	3/3/78	7	279. E
0788	Site 2		2	34.0
0789	Site 3		7	206.
0790	Site 4		7	480.
0791	Site 5		7	142.
0792	Site 6		2	17.2
0793	Site 1	3/9/78	3	76.0 E
0794	Site 2		3	40.4
0795	Site 3		3	65.2
0796	Site 4		3	30.7
0797	Site 5		3	76.9
0798	Site 6		3	30.0 E
0799	Site 1	3/15/78	3	21.2
0800	Site 2		3	38.2
0801	Site 3		3	120.
0802	Site 4		9	72.6
[illegible]3	Site 5		1	9.35
[illegible]4	Site 6		3	40.6

Northern Testing Laboratories, Inc.

Western Energy Company
Colstrip, Montana

April 28, 1978
Job No. 69-147-12
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter Micrograms/cubic meter, ai
10805	Site 1	3/21/78	2	26.1 E
10806	Site 2		9	49.7
10807	Site 3		3	132.
10808	Site 4		7	101. E
10809	Site 5		1	10.8
10810	Site 6		9	173. E
10811	Site 1	3/27/78	3	52.0
10812	Site 2		4	106.
10813	Site 3		4	272.
10814	Site 4		9	90.6
10815	Site 5		2	26.9
10816	Site 6		4	200.

E. The timer was mis-set and sampler did not operate for 24 hours. The particulate concentrations reported were calculated using the actual elapsed sampling time.

G.M.

Site 1 - 57.2 E.
2 - 48.8
3 - 142.1
4 - 99.6 E.
5 - 31.2
6 - 59.2 E.

Certified

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill
Montana Power Co. - Butte (3)
ATTN: Dick Myott

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Mike Shea

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date June 5, 1978
Job Number 69-147-12
Sheet 1 of 2

Report to:
WESTERN ENERGY COMPANY (1)
ATTN: MR. CHRIS CULL
P O BOX 67
COLSTRIP, MT 59323

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
37	Site 1	4/2/78	4	111
38	Site 2		3	35.1
39	Site 3		4	89.3
40	Site 4		7	128
41	Site 5		2	16.9
42	Site 6		4	107
43	Site 1	4/8/78	3	52.9
44	Site 2		9	65.9
45	Site 3		4	110
46	Site 4		3	61.1
47	Site 5		2	43.0
48	Site 6		4	106
49	Site 1	4/14/78	8	74.2
50	Site 2		11	71.6
51	Site 3		10	222
52	Site 4		9	91.5
53	Site 5		4	115
54	Site 6		No sample received	

Northern Testing Laboratories, Inc.

Western Energy Company
Colstrip, Montana

June 5, 1978
Job Number 69-147-12
Sheet 2 of 2

ab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter Micrograms/cubic meter, air
2455	Site 1	4/20/78	5	45.7
2456	Site 2		1	56.7
2457	Site 3		8	73.6
2458	Site 4		3	53.9
2459	Site 5		3	53.1
2460	Site 6		7	113(1)
2461	Site 1	4/26/78	5	149
2462	Site 2		2	118
2463	Site 3		7	398
2464	Site 4		3	200
2465	Site 5		7	158
24	Site 6		5	68.1
2467	Site 1	5/2/78	3	42.9
2468	Site 2		3	12.4
2469	Site 3		3	83.9
2470	Site 4		4	102
2471	Site 5		2	33.3
2472	Site 6		2	18.0

(1) Due to a power outage, the sampler ran from 1630 on 4/20/78 to 1630 on 4/21/78.

	G.M.
Site 1 -	78.4
2 -	64.4
3 -	144.9
4 -	94.9
5 -	58.8
6 -	38.7

Certified

cc: Western Energy Co. - Butte (2)✓
ATTN: Art Neill
Montana Power Co. - Butte (3)
ATTN: Dick Myott

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date June 29, 1978
Job Number 69-147-12
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY (1)
ATTN: MR. CHRIS CULL
P O BOX 67
COLSTRIP, MT 59323

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

b No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
394	Site 1	5/8/78	2	20.6
395	Site 2	"	3	19.5
396	Site 3	"	3	25.5
397	Site 4	"	2	12.9
398	Site 5	"	1	7.94
399	Site 6	"	2	209.9
400	Site 1	5/14/78	4	84.8
401	Site 2	"	3	47.0
402	Site 3	"	4	228.7
403	Site 4	"	9	107.2
404	Site 5	"	2	31.3
405	Site 6	"	3	28.4
406	Site 1	5/20/78	3	26.3
407	Site 2	"	2	10.9
408	Site 3	"	9	68.0
409	Site 4	"	9	124.3
4[illegible]	Site 5	"	3	9.86
411	Site 6	"	3	10.1

Northern Testing Laboratories, Inc.

Western Energy Company
Colstrip, Montana

June 29, 1978
Job No. 69-147-12
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter Micrograms/cubic meter, air
13412	Site 1	5/26/78	3	32.5
13413	Site 2	"	3	38.5
13414	Site 3	"	3	85.4
13415	Site 4	"	7	80.2
13416	Site 5	"	3	28.7
13417	Site 6	"	9	69.8

G.M.

Site 1 - 36.4
2 - 21.7
3 - 77.8
4 - 67.5
5 - 18.8
6 - 37.6

Certified Jay C. Lyndes

cc: Western Energy Company - Butte (2)
ATTN: Art Neill
Montana Power Co. - Butte (3)
ATTN: Dick Myott

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date August 17, 1978
Job Number 69-147-11
Sheet 1 of 2

Report to:
WESTERN ENERGY COMPANY (2)
ATTN: MR. ART NEILL
40 EAST BROADWAY
BUTTE, MT 59701

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

ab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
15275	Site 1	6/1/78	3	26.1
15276	Site 2		2	17.2
15277	Site 3		2	18.6
15278	Site 4		1	8.56
15279	Site 5		2	7.25
15280	Site 6		2	16.4
15281	Site 1	6/7/78	3	28.0 (1)
15282	Site 2		2	21.2
15283	Site 3		3	47.7
15284	Site 4		3	46.7
15285	Site 5		3	13.1
15286	Site 6		3	47.7
15287	Site 1	6/13/78	9	77.6 (1)
15288	Site 2		7	65.4
15289	Site 3		7	185.
15290	Site 4		9	119.
15291	Site 5		3	65.2
15292	Site 6		9	112.

Northern Testing Laboratories, Inc.

Western Energy Company
Colstrip, Montana

August 17, 1978
Job No. 69-147-11
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter Micrograms/cubic meter, air
15293	Site 1	6/19/78	1	18.7 (1)
15294	Site 2		5	55.0
15295	Site 3		2	33.8
15296	Site 4		9	48.8
15297	Site 5		1	13.3
15298	Site 6		7	242.
15299	Site 1	6/25/78	2	18.8
15300	Site 2		2	26.2
15301	Site 3		4	118.
15302	Site 4		2	26.8
15303	Site 5		2	18.6
15304	Site 6		3	50.7
15305	Site 1	7/1/78	2	31.4
15306	Site 2		3	54.4
15307	Site 3		8	110.
15308	Site 4		5	62.7
15309	Site 5		3	65.4
15310	Site 6		3	68.0

(1) A transformer was used in place of the flow controller. The concentrations were calculated accordingly.

	G.M.
Site 1	28.8
2	32.2
3	58.0
4	~~[illegible]~~ 36.2
5	17.3
6	64.0

Certified Jay C. Lyndes

cc: Western Energy Co. (1)
ATTN: Chris Cull
Colstrip, MT

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date September 8, 1978
Job Number 69-147-11
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY (2)
ATTN: MR. ART NEILL
40 EAST BROADWAY
BUTTE, MT 59701

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

ab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
6139	Site 1	7/7/78	3	55.1 (1)
6140	Site 2		2	37.3
6141	Site 3		3	107
6142	Site 4		1	22.0
6143	Site 5		3	26.7
6144	Site 6		2	33.4
6145	Site 1	7/13/78	3	56.4 (1)
6146	Site 2		2	79.9
6147	Site 3		4	136
6148	Site 4		3	84.7
6149	Site 5		2	31.0
6150	Site 6		7	124
6151	Site 1	7/19/78	2	40.3 (1)
6152	Site 2		2	26.9
6153	Site 3		2	71.0
6154	Site 4		4	40.5
6155	Site 5		3	35.7
6156	Site 6		3	96.3

Western Energy Company
Butte, MT

September 8, 1978
Job No. 69-147-11
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter Micrograms/cubic meter, air
16157	Site 1	7/25/78	3	51.3 (1)
16158	Site 2		3	49.5
16159	Site 3		4	104
16160	Site 4		5	65.9
16161	Site 5		2	30.3
16162	Site 6		2	60.6
16133	Site 1	7/31/78	3	47.8 (1)
16134	Site 2		2	35.6
16135	Site 3		3	63.7
16136	Site 4		2	31.9
16137	Site 5		2	31.0
16138	Site 6		3	40.8

(1) A transformer was used in place of a flow controller. The concentrations were calculated accordingly.

G.M.

Site 1 – 49.8
2 – 42.7
3 – 92.7
4 – 43.7
5 – 30.8
6 – 62.9

Certified

cc: Western Energy Co. – Colstrip (1)
ATTN: Chris Cull

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date October 2, 1978
Job Number 69-147-11
Sheet 1 of 2

Report to:
WESTERN ENERGY COMPANY
ATTN: MR. ART NEILL
40 EAST BROADWAY
BUTTE, MT 59701

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
17976	Site 1	8/6/78	3	193
17977	Site 2		2	50.1
17978	Site 3		4	348
17979	Site 4		9	56.3
17980	Site 5		8	36.1
17981	Site 6		9	94.2
17982	Site 1	8/12/78	3	168
17983	Site 2		3	93.2*
17984	Site 3		4	215
17985	Site 4		4	167
17986	Site 5		3	81.6
17987	Site 6		3	74.4
17988	Site 1	8/18/78	2	20.9
17989	Site 2		3	172
17990	Site 3		3	103
17991	Site 4		2	66.3
17992	Site 5		1	21.8
17993	Site 6		3	126

Northern Testing Laboratories, Inc.

Western Energy Company
Colstrip, Montana

October 2, 1978
Job No. 69-147-11
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter Micrograms/cubic meter, air
17994	Site 1	8/24/78	3	117
17995	Site 2		2	114
17996	Site 3		2	140
17997	Site 4		2	91.3
17998	Site 5		2	66.8
17999	Site 6		2	80.4
18000	Site 1	8/30/78	3	207
18001	Site 2		3	157
18002	Site 3		7	373
18003	Site 4		3	221
18004	Site 5		3	130
1[illegible]5	Site 6		3	143

*The flow controller was operating erratically. The particulate concentration was calculated using flows from previous runs.

G.M.

Site 1 – 110.4
2 – 107.5
3 – 209.4
4 – 104.7
5 – 56.1
6 – 100.3

Certified

cc: Western Energy Co. - Colstrip (1)
ATTN: Chris Cull
MPC - Butte (3)
ATTN: Dick Myott

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of:	Particulate Matter Collected On High Volume Air Sample Filters	Date	October 30, 1978
		Job Number	69-147-11
		Sheet	1 of 2

Report to:
WESTERN ENERGY COMPANY (2)
ATTN: MR. ART NEILL
40 EAST BROADWAY
BUTTE MT 59701

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

ab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
8941	Site 1	9/5/78	7	208.
8942	Site 2	9/5/78	7	252.
8943	Site 3	9/5/78	10	546.
8944	Site 4	9/5/78	10	199.
8945	Site 5	9/5/78	5	64.4
8946	Site 6	9/5/78	10	267.
8947	Site 1	9/12/78	3	41.5
8948	Site 2	9/11/78	5	129.
8949	Site 3	9/11/78	2	38.4
8950	Site 4	9/11/7	1	10.5
8951	Site 5	9/11/78	1	5.03
8952	Site 6	9/11/78	2	37.6
8953	Site 1	9/17/78	2	-- Invalid (1)
8954	Site 2	9/17/78	3	37.4
8955	Site 3	9/17/78	10	191.
8956	Site 4	9/17/78	2	72.5
89[illegible]	Site 5	9/17/78	2	42.5
895[illegible]	Site 6	9/17/78	10	146.

Northern Testing Laboratories, Inc.

Western Energy Company
Colstrip, Montana

October 30, 1978
Job No. 69-147-11
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter Micrograms/cubic meter, air
18959	Site 1	9/23/78	7	92.2
18960	Site 2	9/23/78	3	36.0
18961	Site 3	9/23/78	10	107.
18962	Site 4	9/23/78	2	51.0
18963	Site 5	9/23/78	5	24.0
18964	Site 6	9/23/78	9	63.0
18965	Site 1	9/29/78	3	20.6
18966	Site 2	9/29/78	5	55.2
18967	Site 3	9/29/78	8	66.4
18968	Site 4	9/29/78	2	35.8
18969	Site 5	9/29/78	1	16.2
18970	Site 6	9/29/78	5	42.7
[illegible]71	Site 1	9/30/78	7	69.5
18972	Site 2	9/30/78	5	36.9
18973	Site 3	9/30/78	9	161.
18974	Site 4	9/30/78	9	70.7
18975	Site 5	9/30/78	8	35.6
18976	Site 6	9/30/78	1	43.9
18977	Site 1	10/1/78	2	34.2
18978	Site 2	10/1/78	3	75.3
18979	Site 3	10/1/78	2	83.3
18980	Site 4	10/1/78	1	23.1
18981	Site 5	10/1/78	1	19.1
18982	Site 6	10/1/78	9	98.0
18983	Site 1	10/2/78	2	22.2
18984	Site 2	10/2/78	3	134.
18985	Site 3	10/2/78	2	99.4
18986	Site 4	10/2/78	9	79.3
18987	Site 5	10/2/78	1	13.5
18988	Site 6	10/2/78	7	198.

G. M. (Sept.)

Site 1 – 63.6
2 – 75.3
3 – 123.3
4 – 48.8
5 – 22.2
6 – 83.0

(1) The trace on the transducer chart was erratic due to a leaky gasket.

Certified

cc: Western Energy Co. - Colstrip (1)
ATTN: Chris Cull
Montana Power Co. - Butte (3)
ATTN: Dick Myott

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date December 7, 1978
Job Number 69-147-11
Sheet 1 of 2

Report to:
WESTERN ENERGY COMPANY
ATTN: MR. ART NEILL
40 EAST BROADWAY
BUTTE MT 59701

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
20776	Site 1	10/5/78	3	53.7
20777	Site 2		2	47.0
20778	Site 3		9	100.
20779	Site 4		9	103.
20780	Site 5		5	14.0
20781	Site 6		7	134.
20782	Site 1	10/11/78	9	34.1
20783	Site 2		9	86.5(1)
20784	Site 3		7	166.(2)
20785	Site 4		5	82.7
20786	Site 5		5	41.4
20787	Site 6		9	18.9
20788	Site 1	10/17/78	9	63.1
20789	Site 2		5	73.3(1)
20790	Site 3		2	25.9
20791	Site 4		9	52.6
20792	Site 5		2	20.2
20793	Site 6		9	61.6

Northern Testing Laboratories, Inc.

Western Energy Company
Colstrip, Montana

December 7, 1978
Job No. 69-147-11
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter Micrograms/cubic meter, air
20794	Site 1	10/23/78	2	39.9
20795	Site 2		9	47.7
20796	Site 3		4	190.
20797	Site 4		2	41.0
20798	Site 5		5	26.2
20799	Site 6		7	92.5
20800	Site 1	10/29/78	2	29.3
20801	Site 2		5	64.8
20802	Site 3		3	87.5
20803	Site 4		3	45.5
20804	Site 5		5	19.6
20805	Site 6		2	30.5

G.M.

Site 1 - 42.3
2 - 62.1
3 - 93.5
4 - 60.9
5 - 22.7
6 - 53.5

(1) The trace on the transducer chart indicates the sampler ran for approximately 8 hours. The field technician indicates that it ran for 24 hours. On October 11, 1978, the concentration of particulate for an 8-hour period was 260 ug/m^3 and 86.5 ug/m^3 for a 24-hour period. On October 17, 1978, the concentration of particulate was 271 ug/m^3 for an 8-hour period and 73.3 ug/m^3 for a 24-hour period.

(2) It appears some particulate was lost in handling prior to receipt of the sample in the laboratory.

Certified Ray C. Lynds

cc: Western Energy Co. - Colstrip (1)
ATTN: Chris Cull

Montana Power Co. - Butte (1)
ATTN: Dick Myott

Report of: Particulate Matter Collected on High Volume Air Sample Filters

Date February 7, 1979
Job Number 69-147-11
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY (2)
ATTN: MR. ART NEILL
40 EAST BROADWAY
BUTTE, MT 59701

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, micrograms/cubic meter, air
23522	Site 1	11/4/78	5	72.9
23523	Site 2		5	141
23524	Site 3		7	179
23525	Site 4		8	67.8
23526	Site 5		8	64.0
23527	Site 6		9	89.2
23528	Site 1	11/10/79	2	5.67
23529	Site 2		5	2.52
23530	Site 3		2	1.90
23531	Site 4		5	-0.01
23532	Site 5		5	-0.01
23533	Site 6		2	5.27
23534	Site 1	11/16/79	7	73.8
23535	Site 2		7	138
23536	Site 3		4	248*
[illegible]	Site 4		-	- **
[illegible]537	Site 5		7	8.63
23538	Site 6		2	114

Northern Testing Laboratories, Inc.

Western Energy Company
Colstrip, Montana

February 7, 1979
Job No. 69-147-11
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
23539	Site 1	11/22/78	7	104
23540	Site 2		4	171
23541	Site 3		4	455*
--	Site 4		-	- **
23542	Site 5		4	171
23543	Site 6		7	138
23544	Site 1	11/28/78	9	45.0
23545	Site 2		9	32.3
23546	Site 3		7	108-
23547	Site 4		8	195
23548	Site 5		2	6.86
23549	Site 6		3	40.6
23550	Site 1	12/4/78	2	9.37
3551	Site 2		2	11.3
3552	Site 3		2	15.6
23553	Site 4		5	54.2
23554	Site 5		2	3.53
23555	Site 6		2	8.77

*The filter lost particulate in handling prior to receipt of the sample in the laboratory.

**The site was being moved and therefore was not in operation.

Minus sign indicates that less than the amount recorded was found in the sample.

Certified Ray C. Lyndes

cc: Western Energy Co. - Colstrip (1)
ATTN: Chris Cull

Montana Power Co. - Butte (1)
ATTN: Dick Myott

G.M.

Site 1 – 42.7
2 – 48.6
3 – 83.8
4 – 5.1 – only 3 samples
5 – 5.8
6 – 49.6

NORTHERN
TESTING
LABORATORIES

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date February 14, 1979
Job Number 69-147-11
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY (2)
ATTN: MR. ART NEILL
40 EAST BROADWAY
BUTTE MT 59701

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air samples filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
22382	Site 1	12/10/78	2	12.7
22383	Site 2		2	12.6
22384	Site 3		3	34.2
-----	Site 4		-	--- (1)
22385	Site 5		3	6.73
22386	Site 6		2	21.2
22387	Site 1	12/16/78	7	68.6
22388	Site 2		2	54.2
22389	Site 3		7	196.
-----	Site 4		-	---
22390	Site 5		1	2.22
22391	Site 6		3	79.2 (2)
22392	Site 1	12/22/78	3	32.7
22393	Site 2		9	33.6
22394	Site 3		3	85.2
-----	Site 4		-	--- (1)
22395	Site 5		1	4.58
22396	Site 6		7	108.

Northern Testing Laboratories, Inc.

Western Energy Company
Butte MT

February 14, 1979
Job No. 69-147-11
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
23297	Site 1	12/28/78	2	14.4
23298	Site 2		2	7.56
23299	Site 3		3	73.5
-----	Site 4		-	--- (1)
23400	Site 5		2	8.24
23401	Site 6		3	63.9
23402	Site 1	1/3/79	3	19.9
23403	Site 2		5	35.2
23404	Site 3		3	101.
23405	Site 4		5	132.
23406	Site 5		2	11.6
23407	Site 6		3	56.1

(1) Site 4 was being relocated and therefore was not in operation.

(2) It appears some particulate was lost in handling prior to receipt of the sample in the laboratory.

	G.M.
Site 1 –	20.7
2 –	18.1
3 –	58.0
4 –	~~[illegible]~~ —
5 –	4.6
6 –	39.9

Certified Ray C. Lynds

cc: Western Energy Co. - Colstrip (1)
Attn: Chris Cull
Montana Power Co. - Butte (3)
Attn: Dick Myott

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date March 15, 1979
Job Number 69-147-11
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY
ATTN: MR. ART NEILL
40 EAST BROADWAY
BUTTE, MONTANA 59701

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air	
23699	Site 1	1-9-79	4	387.	(3)
23700	Site 2	1-9-79	3	37.2	
23701	Site 3	1-9-79	4	233.	(3)
23702	Site 4	1-9-79	4	2868.	(3)
23703	Site 5	1-9-79	1	13.7	
23704	Site 6	1-9-79	7	68.8	(1)
	Site 1	1-15-79	-	----	(2)
23705	Site 2	1-15-79	3	55.6	
23706	Site 3	1-15-79	4	149.	
23707	Site 4	1-15-79	4	397.	(3)
23708	Site 5	1-15-79	2	8.95	
23709	Site 6	1-15-79	4	65.2	(1)
23710	Site 1	1-21-79	5	16.8	
23711	Site 2	1-21-79	3	49.8	
23712	Site 3	1-21-79	3	92.9	(3)
23713	Site 4	1-21-79	3	180.	
23714	Site 5	1-21-79	2	7.45	
237	Site 6	1-21-79	3	88.2	(3)

Northern Testing Laboratories, Inc.

Western Energy Company
Colstrip, Montana

Job No. 69-147-11
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter Micrograms/cubic meter, air
23716	Site 1	1-27-79	4	334. (3)
23717	Site 2	1-27-79	9	275. (3)
23718	Site 3	1-27-79	7	305. (3)
23719	Site 4	1-27-79	4	382. (3)
23720	Site 5	1-27-79	3	51.4
23721	Site 6	1-27-79	9	80.6

(1) The average transducer reading is greater than the highest point on the calibration curve. The sampler flow was estimated.

(2) No sample received.

Some particulate may have been lost in handling prior to receipt of the sample in the laboratory.

Certified

cc: Western Engergy Co. - Colstrip (1)
Attn: Chris Cull
Montana Power Co. - Butte (3)
Attn: Dick Myott

NORTHERN TESTING LABORATORIES

Report of: Particulate Matter Collected on High
Volume Air Sample Filters

Date April 9, 1979
Job Number 69-147-11
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY (2)
ATTN: MR. ART NEILL
40 EAST BROADWAY
BUTTE, MONTANA 59701

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 42, Part 410, Appendix B, pages 1305 to 1307, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS

ab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
24891	Site 1	2-2-79	4	161.
24892	Site 2	2-2-79	3	61.6
24893	Site 3	2-2-79	7	287. (1)
24894	Site 4	2-2-79	4	1,760. (1)
24895	Site 5	2-2-79	1	27.8
24896	Site 6	2-2-79	3	73.7
24897	Site 1	2-8-79	7	114.
24898	Site 2	2-8-79	9	76.7
24899	Site 3	2-8-79	10	175. (1)
24900	Site 4	2-8-79	4	331. (1)
24901	Site 5	2-8-79	2	16.7
24902	Site 6	2-8-79	10	Invalid (2)
24903	Site 1	2-14-79	3	53.0
24904	Site 2	2-14-79	9	19.4
24905	Site 3	2-14-79	2	37.4 (1)
24906	Site 4	2-14-79	3	123. (1)
24907	Site 5	2-14-79	1	6.14
24908	Site 6	2-14-79	10	268. (1)

Northern Testing Laboratories, Inc.

Western Energy Company
Colstrip, MT

Job No. 69-147-11
Sheet 2 of 2

ab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
-----	Site 1	2-20-79	-	(3)
4909	Site 2	2-20-79	3	42.3
4910	Site 3	2-20-79	9	98.6
4911	Site 4	2-20-79	3	112.
4912	Site 5	2-20-79	2	9.02
4913	Site 6	2-20-79	3	18.3
4914	Site 1	2-26-79	4	61.3
4915	Site 2	2-26-79	3	60.7
4916	Site 3	2-26-79	3	72.5
4917	Site 4	2-26-79	4	130.
4918	Site 5	2-26-79	2	9.74
4919	Site 6	2-26-79	3	25.3

1) Some particulate may have been lost in handling prior to receipt of the sample in the laboratory.

2) Sample invalid due to an electrical failure.

3) No sample received in the laboratory.

Certified ______________________

cc: Western Energy Co. - Colstrip (1)
  Attn: Chris Cull
Montana Power Co. - Butte (3)
  Attn: Dick Myott

Report of: Particulate Matter Collected on High Volume Air Sample Filters

Date June 12, 1979
Job Number 69-147-11
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY (2)
ATTN: MR. ART NEILL
40 EAST BROADWAY
BUTTE, MT 59701

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 40, Part 50, Appendix B, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
26078	Site 1	3-4-79	3	44
26079	Site 2	3-4-79	2	44
26080	Site 3	3-4-79	3	92
26081	Site 4	3-4-79	9	85
26082	Site 5	3-4-79	1	2
26083	Site 6	3-4-79	2	22
26084	Site 1	3-10-79	3	19
26085	Site 2	3-10-79	3	20
26086	Site 3	3-10-79	4	101
26087	Site 4	3-10-79	2	43
26088	Site 5	3-10-79	2	7
26089	Site 6	3-10-79	3	33
26090	Site 1	3-16-79	3	84
26091	Site 2	3-16-79	3	36
26092	Site 3	3-16-79	4	202
26093	Site 4	3-16-79	4	280
26094	Site 5	3-16-79	5	29
26095	Site 6	3-16-79	2	25

Western Energy Company
Butte, Montana 49701

Job No. 69-147-11
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
26096	Site 1	3-22-79	9	37
26097	Site 2	3-22-79	9	61
26098	Site 3	3-22-79	3	142
26099	Site 4	3-22-79	4	450
26100	Site 5	3-22-79	2	13
26101	Site 6	3-22-79	9	82
26102	Site 1	3-28-79	2	30
26103	Site 2	3-28-79	2	22
26104	Site 3	3-28-79	7	810
26105	Site 4	3-28-79	3	122
26106	Site 5	3-28-79	7	70
26107	Site 6	3-28-79	7	81

Certified ______________________________

cc: Western Energy Co. - Colstrip (1)
Attn: Chris Cull
Montana Power Company - Butte (3)
Attn: Dick Myott

Report of: Particulate Matter Collected on High Volume Air Sample Filters

Date June 12, 1979
Job Number 69-147-11
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY (2)
ATTN: MR. ART NEILL
40 EAST BROADWAY
BUTTE, MT 59701

Sample Identication:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the code of Federal Regulations, Title 40, Part B, Appendix B, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
27111	Site 1	4-3-79	3	24.
27112	Site 2	4-3-79	5	31.
27113	Site 3	4-3-79	4	152.
27114	Site 4	4-3-79	4	421.
27115	Site 5	4-3-79	2	25.
27116	Site 6	4-3-79	3	41.
27117	Site 1	4-9-79	6	97.
27118	Site 2	4-9-79	5	37.
27119	Site 3	4-9-79	7	268.
27130	Site 4	4-9-79	6	135.
27121	Site 5	4-9-79	3	84.
27122	Site 6	4-9-79	3	54.
27123	Site 1	4-15-79	3	37.
27124	Site 2	4-15-79	2	30.
27125	Site 3	4-15-79	3	88.
27126	Site 4	4-15-79	7	293.
27127	Site 5	4-15-79	3	57.
27128	Site 6	4-15-79	3	32.

NTL-M-17

Western Energy Company
Butte, MT

Job No. 69-147-11
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
27129	Site 1	4-21-79	9	37.
27130	Site 2	4-21-79	3	25.
27131	Site 3	4-21-79	3	74.
27132	Site 4	4-21-79	7	512.
27133	Site 5	4-21-79	2	24.
27134	Site 6	4-21-79	3	77.
27135	Site 1	4-27-79	4	41.
27136	Site 2	4-27-79	3	35.
27137	Site 3	4-27-79	4	154.
27138	Site 4	4-27-79	7	392.
27139	Site 5	4-27-79	5	25.
27140	Site 6	4-27-79	3	54.

Certified____________________________

cc: Western Energy Co. - Colstrip (1)
Attn: Chris Cull
Montana Power Company - Butte (3)
Attn: Dick Myott

Northern Testing Laboratories
CONSULTING ENGINEERS

Report of: Particulate Matter Collected On High Volume Air Sample Filters

Date August 13, 1979
Job Number 69-147-11
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY (2)
ATTN: DENNIS SCHWEHR
107 EAST GRANITE
BUTTE, MT 59701

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 40, Part 50, Appendix B, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter Micrograms/cubic meter, air
28068	Site 1	5-3-79	3	34.
28069	Site 2		3	26.
28070	Site 3		3	150.
28071	Site 4		7	575.
28072	Site 5		2	29.
28073	Site 6		4	114.
28074	Site 1	5-9-79	8	Invalid (34.) (1)
28075	Site 2		2	Invalid (22.) (1)
28076	Site 3		2	31.
28077	Site 4		4	154.
28078	Site 5		2	28.
28079	Site 6		3	Invalid (19.) (1)
28080	Site 1	5-15-79	4	104.
28081	Site 2		7	122.
28082	Site 3		4	206.
28083	Site 4		7	933.
28084	Site 5		8	72.
28085	Site 6		4	74.

Western Energy Company
Butte, MT

Job No. 69-147-11
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
28086	Site 1	5-21-79	5	40.
28087	Site 2		3	55.
28088	Site 3		4	379.
28089	Site 4		4	971.
28090	Site 5		8	59.
28091	Site 6		7	204.
28092	Site 1	5-27-79	5	35.
28093	Site 2		5	35.
28094	Site 3		3	121.
28095	Site 4		4	219.
28096	Site 5		5	43.
28097	Site 6		2	45.
31570	Site 1	6-2-79	3	28.
31571	Site 2		3	11.
31572	Site 3		3	148.
31573	Site 4		4	265.
31574	Site 5		8	42.
31575	Site 6		2	56.

(1) The temperature and barometric pressure data was not available for flow calculations. The value in parenthesis was calculated using average flows for the sampler.

Certified John Standish

cc: Western Energy Co. - Colstrip (1)
Attn: Chris Cull
Western Energy Co. - Billings (1)
Attn: Mike Shea

Northern Testing Laboratories
CONSULTING ENGINEERS

Report of: Particulate Matter Collected on High Volume Air Sample Filters

Date August 13, 1979
Job Number 69-147-11
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY (2)
ATTN: DENNIS SCHWEHR
107 EAST GRANITE
BUTTE, MT 59701

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 40, Part 50, Appendix B, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
29554	Site 1	6-8-79	3	26.
29555	Site 2		3	18.
29556	Site 3		2	46.
29557	Site 4		3	90.
29558	Site 5		1	4.
29559	Site 6		2	Invalid (6.) 1.
29560	Site 1	6-14-79	9	86.
29561	Site 2		9	93.
29562	Site 3		7	188.
29563	Site 4		7	380.
29564	Site 5		5	90.
29565	Site 6		7	183.
29566	Site 1	6-20-79	2	26.
29567	Site 2		2	40.
29568	Site 3		2	56.
29569	Site 4		4	152.
29570	Site 5		8	25.
29571	Site 6		3	44.

Western Energy Company
Butte, MT

August 13, 1979
Job No. 69-147-11
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic, meter, air
29572	Site 1	6-26-79	4	83.
29573	Site 2		5	55.
29574	Site 3		7	143.
29575	Site 4		4	199.
29576	Site 5		6	95.
29577	Site 6		5	60.

(1) The transducer was not operating properly. The value in parenthesis was calculated using previous flow values.

Certified John Standish

cc: Western Energy Co. - Colstrip (1)
Attn: Chris Cull
Western Energy Co. - Billings (1)
Attn: Mike Shea

Northern
Testing
Laboratories
CONSULTING ENGINEERS

RECEIVED
SEP 7 1979
WESTERN ENERGY COMPANY
GEOLOGICAL DEPT.

Report of: Particulate Matter Collected on High Volume Air Sample Filters

Date September 4, 1979
Job Number 69-147-11
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY (1)
ATTN: CHRIS CULL
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

Summarized below are the results of particulate matter samples which were collected on high volume air sample filters on the dates shown. The samples were analyzed in accordance with the Code of Federal Regulations, Title 40, Part 50, Appendix B, "Reference Method for the Determination of Suspended Particulates in the Atmosphere." The results cover a 24-hour period.

TEST RESULTS:

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
32417	Site 1	7/2/79	3	60
32418	Site 2		3	53
32419	Site 3		3	158
32420	Site 4		4	291
32421	Site 5		2	78
32422	Site 6		3	97
32423	Site 1	7/8/79	2	51
32424	Site 2		2	52
32425	Site 3		3	199
32426	Site 4		4	402
32427	Site 5		2	71
32428	Site 6		5	97
32429	Site 1	7/14/79	3	101
32430	Site 2		3	51
32431	Site 3		3	293
32432	Site 4		4	347
32433	Site 5		2	35
32434	Site 6		10	212

Western Energy Company
Colstrip, MT

September 4, 1979
Job No. 69-147-11
Sheet 2 of 2

Lab No.	Location	Date Sampled	Montana Department of Health and Environmental Sciences Color Code Number	Particulate Matter, Micrograms/cubic meter, air
32435	Site 1	7/20/79	4	122
32436	Site 2		3	162
32437	Site 3		3	213
32438	Site 4		4	534
32439	Site 5		7	116
32440	Site 6		3	98
32441	Site 1	7/26/79	3	38
32442	Site 2		3	32
32443	Site 3		8	54
32444	Site 4		3	62
32445	Site 5		3	38
32446	Site 6		2	8

Certified ____________________

cc: Western Energy Co. - Billings (1) ✓
  Attn: Mike Shea
 Western Energy Co. - Butte (1)
  Attn: Dennis Schwehr

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO

3000
Dust
fall

Report of:	Dustfall Analysis Colstrip Area Air Quality Monitoring	Date	November 29, 1976
		Job Number	69-147-1
		Sheet	1 of 1

Report to:
WESTERN ENERGY COMPANY (3)
ATTN MR. PAUL GATZEMEIER
P O BOX 67
COLSTRIP MT 59323

Start here

Sample Identification:

On November 4, 1976, six dustfall samples were delivered to our laboratory for analysis. The analyses were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

Site No.	1	2	3	4	6	7
Lab No.	0220	0221	0222	0223	0224	0225
Date Sampling Started	10/5/76	10/5/76	10/5/76	10/5/76	10/5/76	10/8/76
Date Sampling Ended	11/1/76	11/1/76	11/1/76	11/1/76	11/1/76	11/1/76
Component (tons/square mile)						
Total Settleable Particulates	18.72	18.05	141.70	28.15	11.82	4.80
Benzene Soluble Matter	0.06 .00320	-0.01 0	0.13 [illegible]	0.02 .00071	-0.01 0	0.03 .0062
Combustible Matter, (Non-Benzene Soluble)	1.21 .065	3.26 .0174	83.81 .571	8.82 .313	2.42 .2097	0.76 .1583
Insoluble Matter	14.53 .776	11.11 .6155	131.86 .930	21.86 .777	10.05 .8503	4.15 [illegible]
Total Inorganic Matter	18.66	18.05	141.57	28.13	11.82	4.77

Minus sign indicates less than the level reported was present in the sample.

Certified Gary G. O'Dell

Report of: Dustfall Analysis
· Colstrip Area Air Quality Monitoring

Date December 29, 1976
Job Number 69-147-1
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (3)
ATTENTION MR PAUL GATZMEIER
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

On December 6, 1976, six dustfall samples were delivered to our laboratory for analysis. The analyses were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall. The results of the analyses are as follows:

TEST RESULTS:

Site No. :	1	2	3	4	6	7
[illegible] No. :	0916	0917	0918	0919	0920	0921
Date Sampling Started:	11/1/76	11/1/76	11/1/76	11/1/76	11/1/76	11/1/76
Date Sampling Ended :	12/1/76	12/1/76	12/1/76	12/1/76	12/1/76	12/1/76
Component (tons/sq.mile)						
Total Settleable Particulates	16.71	16.20	287.77	23.44	22.00	11.06
Benzene Soluble Matter	0.05 .00299	-0.01	0.19 .00066	0.13 .0055	0.10 .0045	0.03 .0027
Combustible Matter, (Non-Benzene Soluble)	3.00 .1795	2.52 .1555	213.85 .7431	6.68 .2849	5.74 .2609	1.56 .1410
Insoluble Matter	13.48 .8067	11.36 .7012	283.90 .9865	17.47 .7457	12.48 .5672	6.87 .6211
Total Inorganic Matter	16.66	16.20	287.58	23.31	21.90	11.03

Minus sign indicates less than the level reported was present in the sample.

Certified

dry bulb temp -
relative humidity

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date January 25, 1977
Job Number 69-147-1
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (3)
ATTN: MR. PAUL GATZEMEIER
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

On January 7, 1977, seven dustfall samples were delivered to our laboratory for analysis. The analyses were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

it[illegible]. :	1	2	3	4	6	7	8
al[illegible] :	1075	1076	1077	1078	1079	1080	1081
ate Sampling Started:	12/1/76	12/1/76	12/1/76	12/1/76	12/1/76	12/1/76	12/1/76
ate Sampling Ended :	12/31/76	12/31/76	12/31/76	12/31/76	12/31/76	12/31/76	12/31/76
omponent (tons/sq. ml.)							
Total Settleable Particulates	19.31	230.20	384.65	17.65	30.41	3.85	8.71
Benzene Soluble Matter	-0.01	0.35	2.42	-0.01	0.11	0.05	0.10
Combustible Matter, (Non-Benzene Soluble)	2.31	12.69	291.61	6.98	8.05	1.47	6.00
Insoluble Matter	15.44	220.20	373.04	15.23	26.70	3.37	8.06
Total Inorganic Matter	19.31	229.85	382.23	17.65	30.30	3.80	8.61

Minus sign indicates less than the level reported was present in the sample.

Certified Larry G. O'Dell

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date March 14, 1977
Job Number 69-147-1
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY (3)
ATTN: MR. WEST BOETTGER
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

On February 10, 1977, seven dustfall samples were delivered to our laboratory for analysis. The analyses were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

Site No. :	1	2	3	4	6
Lab No. :	1799	1800	1801	1802	1803
Date Sampling Started:	12/31/76	12/31/76	12/31/76	12/31/76	12/31/76
Date Sampling Ended :	2/1/77	2/1/77	2/1/77	2/1/77	2/1/77
Component (tons/sq. ml.)					
Total Settleable Particulates	15.87	344.36	233.56	15.01	23.89
Benzene Soluble Matter	-0.01 0	0.08 .0002	0.63 .00269	-0.01 0	-0.01 0
Combustible Matter, (Non-Benzene Soluble)	1.97 .1241	20.16 .0585	179.20 .7672	3.34 .2225	5.11 .2139
Insoluble Matter	9.90 .6238	329.36 .9564	224.04 .9592	8.24 .5489	15.50 .6488
Total Inorganic Matter	15.87	344.28	232.93	15.01	23.89

Minus sign indicates less than the level reported was present in the sample.

Northern Testing Laboratories, Inc.

Dustfall Analysis
Colstrip Area Air Quality Monitoring

March 14, 1977
Job No. 69-147-1
Sheet 2 of 2

Western Energy Company
Colstrip, MT 59323

Site No. :	7	8
Lab No. :	1804	1805
Date Sampling Started:	12/31/76	12/31/76
Date Sampling Ended :	2/1/77	2/1/77
Component (tons/sq. mi.)		
Total Settleable Particulates	10.66	12.63
Benzene Soluble Matter	-0.01 0	-0.01 0
Combustible Matter, (Non-Benzene Soluble)	1.03 .0966	2.42 .1916
Insoluble Matter	6.95 .6519	6.02 .4766
Total Inorganic Matter	10.66	12.63

Minus sign indicates less than the level reported was present in the sample.

cc: Western Energy Company (2)
ATTN: Art Neill
Butte, MT

Certified Gary G. O'Dell

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date April 7, 1977
Job Number 69-147-1
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: WEST BOETTGER
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

On March 10, 1977, seven dustfall samples were delivered to our laboratory for analysis. The analyses were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

Site No. :	1	2*	3	4	6	7	8
Lab No. :	2396	2397	2398	2399	2400	2401	2402
Date Sampling Started:	2/1/77	2/1/77	2/1/77	2/1/77	2/1/77	2/1/77	2/1/77
Date Sampling Ended :	3/1/77	3/1/77	3/1/77	3/1/77	3/1/77	3/1/77	3/1/77
Component (tons/square mile)							
Total Settleable Particulates	9.57	751.92	235.90	10.82	19.26	2.74	15.05
Benzene Soluble Matter	-0.01	0.42	1.10	-0.01	0.03	0.03	-0.01
Combustible Matter, (Non-Benzene Soluble)	1.55	21.42	181.46	3.77	6.45	0.65	2.97
Insoluble Matter	7.63	747.40	230.74	9.21	18.78	1.45	4.73
Total Inorganic Matter	9.57	751.50	234.80	10.82	19.23	2.71	15.05

*Sampling personnel reported that a dragline was operating in the vicinity of Site 2 for most of the month.

Minus sign indicates less than the level reported was present in the sample.

cc: Western Energy Company - Butte (2)
Mr. Art Neill

Certified Gary G. O'Dell

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date April 29, 1977
Job Number 69-147-1
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: WEST BOETTGER
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

On April 12, 1977, seven dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

[illegible] No. :	1	2	3	4	6	7	8
Lab No. :	3315	3316	3317	3318	3319	3320	3321
Date Sampling Started:	3/1/77	3/1/77	3/1/77	3/1/77	3/1/77	3/1/77	3/1/77
Date Sampling Ended :	4/1/77	4/1/77	4/1/77	4/1/77	4/1/77	4/1/77	4/1/77
Component (tons/square mile)							
Total Settleable Particulates	9.05	28.31	247.32	44.71	27.05	4.84	9.81
Benzene Soluble Matter	0.10	0.19	2.53	0.50	0.34	0.08	0.23
Combustible Matter, (Non-Benzene Soluble)	1.79	3.26	160.65	12.95	7.42	0.82	3.65
Insoluble Matter	8.57	28.15	240.22	38.10	24.63	3.87	7.87
Total Inorganic Matter	8.95	23.12	244.79	44.21	26.71	4.76	9.58
Montana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	6	5.5	4	7	7	5	4

Minus sign indicates less than the level reported was present in the sample.

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill

Certified Gary G. O'Dell

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date June 9, 1977
Job Number 69-147-1
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: WEST BOETTGER
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

On May 13, 1977, seven dustfall samples were delivered to our laboratory for analysis. The analyses were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

Site No. :	1	2	3	4	6	7	8
Lab No. :	4381	4382	4383	4384	4385	4386	438
Date Sampling Started :	4/1/77	4/1/77	4/1/77	4/1/77	4/1/77	4/1/77	4/1/
Date Sampling Ended :	4/29/77	4/29/77	4/29/77	4/29/77	4/29/77	4/29/77	4/29
Component (tons/sq. mile)							
Total Settleable Particulates	22.84	45.78	116.34	34.11	16.17	10.79	7.5
Benzene Soluble Matter	0.03	0.15	1.68	-0.01	0.03	0.10	0.0
Combustible Matter, (Non-Benzene Soluble)	2.90	4.98	63.50	13.05	3.39	1.61	2.6
Insoluble Matter	16.07	41.91	108.44	30.40	12.78	4.98	5.7
Total Inorganic Matter	22.81	45.63	114.66	34.11	16.14	10.69	7.4

Minus sign indicates less than the level reported was present in the sample.

Western Energy Co. (2)
Butte - ATTN: Art Neill

Certified Gary L. O'Dell

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date July 8, 1977
Job Number 69-147-1
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: WEST BOETTGER
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

On June 16, 1977, eight dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

Site No. :	1	2	3	4	5	6	7	8
Lab No. :	4927	4928	4929	4930	4931	4932	4933	4934
Date Sampling Started :	5/2/77	5/2/77	5/2/77	5/2/77	5/2/77	5/2/77	5/2/77	5/2/77
Date Sampling Ended :	6/1/77	6/1/77	6/1/77	6/1/77	6/1/77	6/1/77	6/1/77	6/1/77
Component (tons/sq. mile)								
Total Settleable Particulates	17.44	58.78	141.47	31.20	7.48	24.40	10.52	12.58
Benzene Soluble Matter	0.15	0.24	1.39	0.24	0.02	0.11	0.03	0.05
Combustible Matter, (Non-Benzene Soluble)	1.90	4.56	71.92	8.58	0.87	3.44	1.89	1.95
Insoluble Matter	10.34	49.91	131.57	21.84	1.35	13.11	3.42	7.10
Total Inorganic Matter	17.29	58.54	140.18	30.96	7.46	24.29	10.49	12.53
Montana Dept. of Health & Environ. Sciences Insoluble Matter Color Code Number	6	5	4	7	5	6	7-	6

Minus sign indicates less than the level reported was present in the sample.

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill

Certified

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date August 2, 1977
Job Number 69-147-1
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: WEST BOETTGER
P O BOX 67
COLSTRIP, MT 59323

Sample Identification:

On July 6, 1977, eight dustfall samples were delivered to our laboraotyry for analysis. The analyses were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

Site No. :	1	2	3*	4	5	6	7	8
Lab No. :	5332	5333	5334	5335	5336	5337	5338	5339
Date Sampling Started:	6/1/77	6/1/77	6/1/77	6/1/77	6/1/77	6/1/77	6/1/77	6/1/77
Date Sampling Ended :	7/1/77	7/1/77	7/1/77	7/1/77	7/1/77	7/1/77	7/1/77	7/1/77
Component (tons/sq. mile)								
Total Settleable Particulates	15.79	38.83	892.81	21.19	13.50	19.86	8.96	12.29
Benzene Soluble Matter	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Combustible Matter, (Non-Benzene Soluble)	3.13	3.58	53.47	3.68	3.13	3.97	1.58	1.92
Insoluble Matter	8.69	30.60	311.81	9.42	5.00	12.60	2.35	4.71
Total Inorganic Matter	15.79	38.83	892.81	21.19	13.50	19.86	8.96	12.29
Montana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	9	6	4	4	7	7	11	10

*Site moved to new location

Minus sign indicates less than the level reported was present in the sample.

Certified

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date September 7, 1977
Job Number 69-147-1
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: WEST BOETTGER
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

On August 15, 1977, seven dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

ite No. :	1	2	3	4*	6	7	8
ab No. :	6167	6168	6169	6170	6172	6173	6174
ate Sampling Started :	7/1/77	7/1/77	7/1/77	7/1/77	7/1/77	7/1/77	7/1/77
ate Sampling Ended :	8/1/77	8/1/77	8/1/77	8/1/77	8/1/77	8/1/77	8/1/77
omponent (tons/sq. mile)							
otal Settleable Particulates	16.29	51.73	54.08	29.93	31.78	4.34	12.05
enzene Soluble Matter	0.03	-0.01	0.15	0.06	-0.01	-0.01	-0.01
ombustible Matter, (Non-Benzene Soluble)	4.48	5.02	22.05	10.13	7.61	1.02	2.98
nsoluble Matter	10.81	45.92	51.34	20.57	23.23	1.92	7.37
otal Inorganic Matter	16.26	51.73	53.93	29.87	31.78	4.34	12.05
ontana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	6	2	7	7	7	8	7

*Sample contaminated with insects.
Site 5 invalid. Sample heavily contaminated with insects.

Minus sign indicates less than the level reported was present in the sampl

Certified

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill
Montana Power Co. - Butte (3)
ATTN: Dick Myott

1005

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date October 11, 1977
Job Number 69-147-1
Sheet 1 of 1

Report to: Western Energy Company (1)
ATTN: West Boettger
P.O. Box 67
Colstrip, Montana 59323

Sample Identification:

On September 21, 1977, seven dustfall samples were delivered to our laboratory for analysis. The analyses were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

Site No. :	1	2	3	4	5	6	8
Lab No. :	7055	7056	7057	7058	7059	7060	7061
Date Sampling Started:	8-1-77	8-1-77	8-1-77	8-1-77	8-1-77	8-1-77	8-1-77
Date Sampling Ended :	9-1-77	9-1-77	9-1-77	9-1-77	9-1-77	9-1-77	9-1-77
(COMPONENT, tons/sq. mile)							
Total Settleable Particulates	15.11	57.15	61.29	19.68	9.49	21.11	10.43
Benzene Soluble Matter	0.02	-0.01	-0.01	-0.01	-0.01	-0.01	0.06
Combustible Matter, (Non-Benzene Soluble)	3.55	5.40	19.45	5.53	2.31	4.53	3.39
Insoluble Matter	9.63	50.86	33.87	14.03	4.97	15.79	6.40
Total Inorganic Matter	15.09	57.15	61.29	19.68	9.49	21.11	10.37
Montana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	7	6	7	7	7	7	7

Site 7 sample destroyed at the site.

Minus sign indicates less than the level reported was present in the sample.

Certified

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill

MPC - Butte (3)
ATTN: Dick Myott

NORTHERN TESTING LABORATORIES, INC.
Great Falls, Billings, Montana - Boise, Idaho - Gillette, Wyoming

WESTERN ENERGY COMPANY
DUSTFALL DATA TRANSMITTAL INFORMATION
Job No. 69-147

Site No.	Date Set Out	Date Removed	Discrepancies and/or Data Loss
1	8-1-77	9-1-77	
2	8-1-77	9-1-77	
3	8-1-77	9-1-77	
4	8-1-77	9-1-77	
5	8-1-77	9-1-77	
6	8-1-77	9-1-77	
7	8-1-77	9-1-77	Site destroyed
8	8-1-77		~~DESTORYED~~

Performed By: ____________________

1667

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date October 27, 1977
Job Number 69-147-1
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: WEST BOETTGER
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

On October 10, 1977, seven dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

Site No. :	1	2	3	4	5*	6	8
Lab No. :	7752	7753	7754	7755	7756	7757	7758
Date Sampling Started :	9/1/77	9/1/77	9/1/77	9/1/77	9/1/77	9/1/77	9/1/77
Date Sampling Ended :	9/30/77	9/30/77	9/30/77	9/30/77	9/30/77	9/30/77	9/30/77
Component (tons/sq. mile)							
Total Settleable Particulates	8.86	16.66	40.89	12.33	52.13	20.81	9.21
Benzene Soluble Matter	0.05	0.05	0.26	0.10	0.03	0.10	0.05
Combustible Matter, (Non-Benzene Soluble)	1.66	1.74	15.10	2.71	2.48	4.86	2.19
Insoluble Matter	3.86	7.47	30.73	6.36	43.58	12.26	4.05
Total Inorganic Matter	8.81	16.61	40.63	12.23	52.10	20.71	9.16
Montana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	7	5	7	7	7	7	7

Minus sign indicates less than the level reported was present in the sampl

*Contaminated with insects

Certified Jay C. Reynolds

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill
Montana Power Co. - Butte (3)
ATTN: Dick Myott

NORTHERN TESTING LABORATORIES, INC.
Great Falls, Billings, Montana - Boise, Idaho - Gillette, Wyoming

WESTERN ENERGY COMPANY
DUSTFALL DATA TRANSMITTAL INFORMATION
Job No. 69-147

Received 10-10-77 LT

Site No.	Date Set Out	Date Removed	Discrepancies and/or Data Loss
1 *	9-1-77	9-30-77	
2	9-1-77	9-30-77	
3	9-1-77	9-30-77	
4	9-1-77	9-30-77	
5	9-1-77	9-30-77	
6	9-1-77	9-30-77	
7			SITE DESTROYED 7#
8 #	9-1-77	9-30-77	

Performed By: ______________________

2 copies

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date November 29, 1977
Job Number 69-147-1
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: CHRIS CULL
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

On November 4, 1977, seven dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

ite No. :	1	2	3	4	5	6	8
a[illegible]. :	8284	8285	8286	8287	8288	8289	8290
ate Sampling Started :	9/30/77	9/30/77	9/30/77	9/30/77	9/30/77	9/30/77	9/30/77
ate Sampling Ended :	10/31/77	10/31/77	10/31/77	10/31/77	10/31/77	10/31/77	10/31/7
omponent (tons/sq. mile)							
otal Settleable Particulates	9.44	12.20	41.60	24.86	13.26	19.99	5.97
enzene Soluble Matter	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
ombustible Matter, (Non-Benzene Soluble)	1.16	1.60	21.03	6.52	2.65	3.63	1.35
nsoluble Matter	3.63	4.94	33.86	16.47	8.10	10.31	2.58
otal Inorganic Matter	9.44	12.20	41.60	24.86	13.26	19.99	5.97
ontana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	7	7	4	10	7	4	7

Minus sign indicates less than the level reported was present in the sample

Certified

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill
Montana Power Co. - Butte (3)
ATTN: Dick Myott

NTL—110

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date January 10, 1978
Job Number 69-147-1
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: CHRIS CULL
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

On December 8, 1977, seven dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

ite No. :							
ab. [illegible] :	1	2	3	4	5	6	8
ate Sampling Started :	8975	8976	8977	8978	8979	8980	8981
ate Sampling Ended :	10-31-77	10-31-77	10-31-77	10-31-77	10-31-77	10-31-77	10-31-7
omponent (tons/sq. mile):	12-1-77	12-1-77	12-1-77	12-1-77	12-1-77	12-1-77	12-1-77
otal Settleable Particulates	9.21	9.63	54.26	14.84	7.00	10.06	17.15
enzene Soluble Matter	0.11	0.06	0.58	0.19	0.10	0.18	0.27
ombustible Matter, (Non-Benzene Soluble)	0.92	1.61	24.97	4.00	0.79	1.65	4.05
nsoluble Matter	5.18	6.73	46.36	10.48	2.81	3.77	12.47
otal Inorganic Matter	9.10	9.57	53.68	14.65	6.90	9.88	16.88
ontana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	10	10	4	3	9	4	10

Minus sign indicates less than the level reported was present in the sample.

Certified

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill
Montana Power Co. - Butte (3)
ATTN: Dick Myott

NTL—110

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date February 7, 1978
Job Number 69-147-1
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: WEST BOETTGER
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

On January 3, 1978, seven dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

Si No. :	1	2	3	4	5	6	8
Lab No. :	9451	9452	9453	9454	9455	9456	9457
Date Sampling Started:	12/1/77	12/1/77	12/1/77	12/1/77	12/1/77	12/1/77	12/1/77
Date Sampling Ended :	1/1/78	1/1/78	1/1/78	1/1/78	1/1/78	1/1/78	1/1/78
Component (tons/sq. mile)							
Total Settleable Particulates	3.70	2.42	40.54	7.45	11.55	0.96	5.92
Benzene Soluble Matter	0.11	-0.01	1.97	1.74	0.08	-0.01	0.10
Combustible Matter, (Non-Benzene Soluble)	0.53	1.37	28.57	3.27	4.63	0.50	2.77
Insoluble Matter	3.05	2.26	38.44	6.00	9.93	0.15	4.47
Total Inorganic Matter	3.59	2.42	38.57	5.71	11.47	0.96	5.82
Montana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	4	4	4	4	2	1	4

Minus sign indicates less than the level reported was present in the sampl

Certified

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill
Montana Power Co. - Butte (3)
ATTN: Dick Myott

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date March 13, 1978
Job Number 69-147-1
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: CHRIS CULL
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

On February 10, 1978, seven dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

Sit[illegible]o. :	1	2	3	4	5	6	7	8
Lab No. :	9838	9839	9840	9841	9842	9843		9844
Date Sampling Started :	1/2/78	1/2/78	1/2/78	1/2/78	1/2/78	1/2/78	1/2/78	1/2/78
Date Sampling Ended :	2/1/78	2/1/78	2/1/78	2/1/78	2/1/78	2/1/78	2/1/78	2/1/78
Component (tons/sq. mile)								
Total Settleable Particulates	8.97	5.60	39.3	68.8	6.74	9.59		3.29
Benzene Soluble Matter	0.56	0.32	2.87	1.85	0.55	0.66		0.08
Combustible Matter, (Non-Benzene Soluble)	2.68	1.83	25.6	17.0	2.57	3.40	Sample Not Received	1.80
Insoluble Matter	5.74	4.94	36.4	58.8	5.77	7.65		2.80
Total Inorganic Matter	8.41	5.28	36.4	66.9	6.19	8.93		3.21
Montana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	4	4	4	7	4	4		4

Certified

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill
Montana Power Co. - Butte (3)

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date April 12, 1978
Job Number 69-147-1
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: CHRIS CULL
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

On March 6, 1978, seven dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

Site No. :	1	2	3	4	5	6	8
Lab No. :	10370	10371	10372	10373	10374	10375	10376
Date Sampling Started :	2/1/78	2/1/78	2/1/78	2/1/78	2/1/78	2/1/78	2/1/78
Date Sampling Ended :	3/1/78	3/1/78	3/1/78	3/1/78	3/1/78	3/1/78	3/1/78
Component (tons/sq. mile)							
Total Settleable Particulates	7.03	16.4	19.2	12.9	6.03	4.70	5.24
Benzene Soluble Matter	0.18	0.10	0.50	0.16	0.08	0.05	0.08
Combustible Matter, (Non-Benzene Soluble)	1.61	2.06	11.1	4.15	2.66	0.94	1.34
Insoluble Matter	5.58	10.4	17.2	10.2	4.42	2.60	3.95
Total Inorganic Matter	6.65	16.3	18.7	12.7	5.95	4.65	5.16
Montana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	7	5	4	4	7	5	5

Minus sign indicates less than the level reported was present in the sampl

Certified

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill
Montana Power Co. - Butte (3)
ATTN: Dick Myott

LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date May 3, 1978
Job Number 69-147-12
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: CHRIS CULL
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

On April 4, 1978, seven dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

Site No.	1	2	3	4	5	6	8
Lab No.	10780	10781	10782	10783	10784	10785	10786
Date Sampling Started	3/1/78	3/1/78	3/1/78	3/1/78	3/1/78	3/1/78	3/1/78
Date Sampling Ended	4/1/78	4/1/78	4/1/78	4/1/78	4/1/78	4/1/78	4/1/78
Component (tons/sq. mile)							
Total Settleable Particulates	13.5	16.7	95.8	54.5	17.2	26.0	18.1
Benzene Soluble Matter	0.31	0.21	2.76	1.00	0.27	0.61	0.19
Combustible Matter, (Non-Benzene Soluble)	3.35	2.74	54.4	13.7	4.79	6.15	3.84
Insoluble Matter	10.9	12.5	87.6	44.5	9.57	22.0	13.5
Total Inorganic Matter	13.2	16.5	93.0	53.5	16.9	25.4	17.9
Montana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	3	5	4	7	4	7	7

Certified Jay C. Lyndes

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill
Montana Power Co. - Butte (3)
ATTN: Dick Myott

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date May 30, 1978
Job Number 69-147-12
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: CHRIS CULL
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

On May 10, 1978, dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

ite No.	1	2	3	4	5	6	8
ab [illegible]	12554	12555	12556	12557	12558	12559	12560
ate Sampling Started	4/2/78	4/2/78	4/2/78	4/2/78	4/2/78	4/2/78	4/2/78
ate Sampling Ended	5/3/78	5/3/78	5/3/78	5/3/78	5/3/78	5/3/78	5/3/78
omponent (tons/sq. mile)							
otal Settleable Particulates	61.0	19.8	63.8	20.8	20.1	27.2	14.9
enzene Soluble Matter	0.02	0.11	0.71	0.26	0.45	0.19	0.37
ombustible Matter, (Non-Benzene Soluble)	2.68	2.82	22.0	6.55	11.4	6.61	6.13
nsoluble Matter	7.89	18.5	60.2	19.7	19.8	23.8	13.8
otal Inorganic Matter	61.0	19.7	63.1	20.5	19.7	27.0	14.5
ontana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	4	6	4	4	4	6	4

Certified

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill
Montana Power Co. - Butte (3)
ATTN: Dick Myott

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date June 30, 1978
Job Number 69-147-12
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: CHRIS CULL
P O BOX 67
COLSTRIP MT 59323

Sample Identification:

On June 3, 1978, dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

Site No.	1	2	3	4	5	6	8
ab No.	13373	13374	13375	13376	13377	13378	13379
ate Sampling Started	5/3/78	5/3/78	5/3/78	5/3/78	5/3/78	5/3/78	5/3/78
ate Sampling Ended	6/3/78	6/3/78	6/3/78	6/3/78	6/3/78	6/3/78	6/3/78
omponent (tons/sq. mile)							
otal Settleable Particulates	16.9	15.5	40.0	21.2	11.2	18.9	191.7
enzene Soluble Matter	-0.01	0.11	-0.01	-0.01	-0.01	-0.01	-0.01
ombustible Matter, (Non-Benzene Soluble)	2.32	0.98	10.1	3.74	1.84	2.11	0.63
nsoluble Matter	4.32	3.06	29.4	14.1	4.92	8.35	49.1
otal Inorganic Matter	16.9	15.4	40.0	21.2	11.2	18.9	191.7
ontana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	3	3	3	3	7	3	2

Minus sign indicates less than the level reported was present in the sample

Certified Jay C. Lynde

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill
Montana Power Co. - Butte (3)
ATTN: Dick Myott

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date August 17, 1978
Job Number 69-147-11
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (2)
ATTN: MIKE GRENDE
40 EAST BROADWAY
BUTTE, MT 59701

Sample Identification:

On July 7, 1978, seven dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

Sit[illegible]o. :	1	2	3	4	5	6	8
Lab No. :	15237	15238	15239	15240	15241	15242	15243
Date Sampling Started :	6/1/78	6/1/78	6/1/78	6/1/78	6/1/78	6/1/78	6/1/78
Date Sampling Ended :	6/30/78	6/30/78	6/30/78	6/30/78	6/30/78	6/30/78	6/30/78
Component (tons/sq. mile)							
Total Settleable Particulates	142	110	123	151	157	168	126
Benzene Soluble Matter	0.26	0.26	0.05	-0.01	0.50	3.06	0.69
Combustible Matter, (Non-Benzene Soluble)	3.52	3.40	20.5	8.50	6.60	9.23	11.7
Insoluble Matter	8.81	22.1	45.3	22.2	14.7	52.7	20.0
Total Inorganic Matter	142	110	123	151	157	165	125
Montana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	11	6	7	7	6	11	11

Minus sign indicates less than the level reported was present in the sample.

Certified

cc: Western Energy Co. - Colstrip (1)
ATTN: Chris Cull
Montana Power Co. - Butte (3)

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date September 15, 1978
Job Number 69-147-11
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: ART NEILL
40 EAST BROADWAY
BUTTE, MT 59701

Sample Identification:

On August 2, 1978, six dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

ite [illegible]. :	3	6
ab No. :	17471	17472
ate Sampling Started :	6/30/78	6/30/78
ate Sampling Ended :	8/1/78	8/1/78
omponent (tons/sq. mile)		
otal Settleable Particulates	40.4	70.1
enzene Soluble Matter	-0.01	-0.01
ombustible Matter, (Non-Benzene Soluble)	17.5	13.0
nsoluble Matter	34.7	63.6
otal Inorganic Matter	40.4	70.1
ontana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	7	5

Sites 1, 2, 4 and 5 were invalid due to excessive bird droppings and insects.

Minus sign indicates less than the level reported was present in the sample.

Certified

cc: Western Energy Co. - Colstrip (1)
ATTN: Chris Cull
Montana Power Co. - Butte (3)

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date October 11, 1978
Job Number 69-147-11
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: ART NEIL
40 East Broadway
Butte, MT 59701

Sample Identification:

On September 11, 1978, eight dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

ite [illegible].	1	2	3	4	5	6*	7	8
ab No.	17483	17484	17485	17486	17487		17489	17490
ate Sampling Started	8/1/78	8/1/78	8/1/78	8/1/78	8/1/78		7/1/78	8/1/78
ate Sampling Ended	8/31/78	8/31/78	8/31/78	8/31/78	8/31/78		8/2/78	8/31/78
omponent (tons/sq. mile)								
otal Settleable Particulates	15.1	14.4	56.7	30.4	30.0		8.95	15.4
enzene Soluble Matter	0.08	0.10	0.61	0.05	0.19		-0.01	0.05
ombustible Matter, (Non-Benzene Soluble)	2.90	2.76	28.4	5.34	14.0		1.52	3.79
nsoluble Matter	7.36	8.11	48.0	12.2	19.8		3.95	6.50
otal Inorganic Matter	15.0	14.3	56.1	30.3	29.8		8.95	15.4
ontana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	3	6	4	3	4		5	3

*Sample was invalid due to excessive bird droppings and insects.

Minus sign indicates less than the level reported was present in the sample.

Certified Jay C. Lynds

cc: Western Energy Co. - Colstrip (1)
ATTN: Chris Cull
Montana Power Co. - Butte (3)

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date November 6, 1978
Job Number 69-147- 11
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: ART NEILL
40 EAST BROADWAY
BUTTE MT 59701

Sample Identification:

On October 6, 1978, seven dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

ite No.	1	2	3	4	5	6	7	8
ab [illegible].	18515	18516	18517	18518	Invalid	18519	19984	1852
ate Sampling Started	8/30/78	8/30/78	8/30/78	8/30/78	(2)	8/30/78	8/2/78	8/30/7
ate Sampling Ended	10/5/78	10/5/78	10/5/78	10/5/78		10/5/78	10/5/78	10/5/7
omponent (tons/sq. mile)								
otal Settleable Particulates	12.8	38.6	43.3 ✓	9.66		23.1	20.4	6.7
enzene Soluble Matter	0.03	-0.01	-0.01	-0.01		-0.01	0.08	-0.0
ombustible Matter, (Non-Benzene Soluble)	2.40	1.90	20.5	2.55		6.02	2.73	3.0
nsoluble Matter	6.65	5.50	36.5	6.60		16.6	13.5	4.6
otal Inorganic Matter	12.8	38.6	43.3	9.66		23.1	20.3	6.7
ontana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	2	5	4	2		3	2	4

(2) Sample was invalid due to excessive bird droppings and insects.

Minus sign indicates less than the level reported was present in the sample

Certified

cc: Western Energy Co. - Colstrip (1)
ATTN: Chris Cull
Montana Power Co. - Butte (3)
ATTN: Dick Myott

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date November 27, 1978
Job Number 69-147-11
Sheet 1 of 2

Report to: WESTERN ENERGY COMPANY (1)
ATTN: ART NEILL
40 EAST BROADWAY
BUTTE MT 59701

Sample Identification:

On November 6, 1978, eight dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

ite No. :	1	2	3	4	5
ab No. :	20561	20562	20563	20564	20565
ate Sampling Started :	10/3/78	10/3/78	10/3/78	10/3/78	10/3/78
ate Sampling Ended :	11/2/78	11/2/78	11/2/78	11/2/78	11/2/78
omponent (tons/sq. mile)					
Total Settleable - Particulates	13.9	15.6	64.4	16.2	8.22
Benzene Soluble Matter	-0.01	-0.01	-0.01	-0.01	-0.01
Combustible Matter, (Non-Benzene Soluble)	1.90	1.40	44.1	4.13	2.26
Insoluble Matter	5.71	5.92	63.7	11.7	2.90
Total Inorganic Matter	13.9	15.6	64.4	16.2	8.22
Montana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	3	2	4	3	3

Minus sign indicates less than the level reported was present in the sampl

Dustfall Analysis

November 27, 1978
Job No. 69-147-11
Sheet 2 of 2

Western Energy Company
Butte, MT

Test Results, continued

Site No. :	6	7	8
Lab No. :	20566	20567	20568
Date Sampling Started :	10/3/78	10/3/78	10/3/78
Date Sampling Ended :	11/2/78	11/2/78	11/2/78
Component (tons/sq. mile)			
Total Settleable Particulates	23.8	7.81	9.12
Benzene Soluble Matter	-0.01	-0.01	-0.01
Combustible Matter, (Non-Benzene Soluble)	4.94	0.76	2.77
Insoluble Matter	16.5	1.68	4.60
Total Inorganic Matter	23.8	7.81	9.12
Montana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	3	2	4

Minus sign indicates less than the level reported was present in the sample.

Certified

cc: Western Energy Co. - Colstrip (1)
ATTN: Chris Cull

Montana Power Co. - Butte (3)
ATTN: Dick Myott

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date January 22, 1979
Job Number 69-147-11
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: ART NEILL
40 EAST BROADWAY
BUTTE MT 59701

Sample Identification:

On December 12, 1978, dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

Site No.	1	2	3	4	5	6	7	8
Lab No.	21349	21350	21351	21352	21353	21354	21355	21356
Date Sampling Started	11/2/78	11/2/78	11/2/78	11/2/78	11/2/78	11/2/78	11/2/78	11/2/78
Date Sampling Ended	12/7/78	12/7/78	12/7/78	12/7/78	12/7/78	12/7/78	12/7/78	12/7/78
Component (tons/sq. mile)								
Total Settleable Particulates	10.1	14.8	65.0	57.8	8.93	17.0	2.80	2.93
Benzene Soluble Matter	1.82	0.08	0.63	0.06	-0.01	-0.01	0.10	0.08
Combustible Matter, (Non-Benzene Soluble)	1.18	2.13	33.2	12.7	3.63	5.27	0.03	1.00
Insoluble Matter	6.05	3.86	49.0	52.0	6.27	11.0	0.13	1.08
Total Inorganic Matter	8.28	14.7	64.4	57.7	8.93	17.0	2.70	2.85
Montana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	3	3	4	3	4	3	3	4

Minus sign indicates less than the level reported was present in the sample

Certified

cc: Western Energy Co. - (1)
ATTN: Chris Cull
Montana Power Co. - Butte (3)

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date February 9, 1979
Job Number 69-147-11
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: ART NEILL
40 EAST BROADWAY
BUTTE, MT 59701

Sample Identification:

On January 8, 1979, dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

Site No.	1	2	3	4	5	6	7	8
Lab No.	22091	22092	22093	22094	22095	22096	22097	22098
Date Sampling Started	12/7/78	12/7/78	12/7/78	12/7/78	12/7/78	12/7/78	12/7/78	12/7/7
Date Sampling Ended	1/4/79	1/4/79	1/4/79	1/4/79	1/4/79	1/4/79	1/4/79	1/4/79
Component (tons/sq. mile)								
Total Settleable Particulates	19.8	13.4	109	158	12.6	33.1	13.9	8.69
Benzene Soluble Matter	-0.01	0.02	-0.01	-0.01	-0.01	-0.01	-0.01	0.19
Combustible Matter, (Non-Benzene Soluble)	4.85	2.56	64.2	49.2	1.81	6.77	1.32	3.95
Insoluble Matter	12.5	5.40	95.1	154	2.13	15.5	1.66	4.56
Total Inorganic Matter	19.8	13.4	109	158	12.6	33.1	13.9	8.50
Montana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	3	2	4	3	2	3	2	4

Minus sign indicates less than the level reported was present in the sampl

Certified

cc: Western Energy Co. - (1)
ATTN: Chris Cull
Montana Power Co. - Butte (3)

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date March 15, 1979
Job Number 69-147-11
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: ART NEILL
40 EAST BROADWAY
BUTTE, MONTANA 59701

Sample Identification:

On February 2, 1979, these dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

Site No.	1	2	3	4	5	6	7	8
Lab No.	24734	24735	24736	24737	24738	24739	24740	24741
Date Sampling Started	1-5-79	1-5-79	1-5-79	1-5-79	1-5-79	1-5-79	1-5-79	1-5-79
Date Sampling Ended	2-1-79	2-1-79	2-1-79	2-1-79	2-1-79	2-1-79	2-1-79	2-1-79
Component (tons/sq. mile)								
Total Settleable Particulates	10.6	9.58	82.9	144.	2.22	15.3	12.8	19.0
Benzene Soluble Matter	-0.01	-1.01	0.25	0.75	-0.01	0.07	0.02	-0.01
Combustible Matter, (Non-Benzene Soluble)	5.12	5.59	0.32	94.6	1.99	7.56	2.10	4.28
nsoluble Matter	9.18	9.58	75.7	141.	2.22	15.3	2.38	4.82
Total Inorganic Matter	10.6	9.58	82.7	143.	2.22	15.2	12.8	19.0
Montana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	3	4	4	4	3	4	2	2

Minus sign indicates less than the level reported was present in the sample

Certified John Standish

cc: Western Energy Co. - Colstrip (1)
ATTN:
Montana Power Co. - Butte (3)
ATTN: Dick Myott

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date April 16, 1979
Job Number 69-147-11
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: ART NEILL
40 EAST BROADWAY
BUTTE, MONTANA 59701

Sample Identification:

On March 5, 1979, these dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows.

TEST RESULTS:

Site No.:	1	2	3	4	5	6	7	8
Lab No.:	25772	25773	25774	25775	25776	25777	25778	25779
Date Sampling Started:	2-1-79	2-1-79	2-1-79	2-1-79	2-1-79	2-1-79	2-1-79	2-1-79
Date Sampling Ended:	3-2-79	3-2-79	3-2-79	3-2-79	3-2-79	3-2-79	3-2-79	3-2-79
Component (tons/sq. mile/30 days)								
Total Settleable Particulates	10.9	14.2	55.5	56.3	8.73	27.2	7.28	4.02
Benzene Soluble Matter	0.12	0.05	1.21	1.41	0.07	0.03	-0.01	-0.01
Combustible Matter, (Non-Benzene Soluble)	2.44	2.53	27.3	30.0	3.56	5.60	1.74	1.36
Insoluble Matter	4.62	7.94	46.2	49.0	6.46	18.3	3.52	2.09
Total Inorganic Matter	10.8	14.2	54.3	54.9	8.66	27.2	7.28	4.02
Montana Dept. of Health & Environmental Science Insoluble Matter Color Code Number	3	2	3	4	3	3	2	2

- Minus sign indicates less than the level reported present in the sample.

Certified

cc: Western Energy Co. - Colstrip (1)
Attn: Chris Cull

Montana Power Co. - Butte (3)
Attn: Dick Myott

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date May 22, 1979
Job Number 69-147-11
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: ART NEILL
40 EAST BROADWAY
BUTTE MT 59701

Sample Identification:

On April 4, 1979, these dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

ite No.	1	2	3	4	5	6	7	8
ab No.	26358	26359	26360	26361	26362	26363	26364	26365
ate Sampling Started	3/2/79	3/2/79	3/2/79	3/2/79	3/2/79	3/2/79	3/2/79	3/2/79
ate Sampling Ended	4/2/79	4/2/79	4/2/79	4/2/79	4/2/79	4/2/79	4/2/79	4/2/79
omponent (tons/sq. mile)								
otal Settleable Particulates	0.88	2.93	52.6	230	3.75	19.9	2.09	4.44
enzene Soluble Matter	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
ombustible Matter, (Non-Benzene Soluble)	0.49	1.00	27.6	21.8	2.00	4.22	0.63	1.55
nsoluble Matter	0.69	2.80	47.7	73.3	3.61	15.3	1.28	2.72
tal Inorganic Matter	0.88	2.93	52.6	230	3.75	19.9	2.09	4.44
ntana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number	2	3	3	3	3	9	5	3

Minus sign indicates less than the level ~~reported was~~ was present in the sample.

Certified Ray C. Lyndes

cc: Western Energy Co. - (1)✓
ATTN: Chris Cull
Montana Power Co. - Butte (3)✓
ATTN: Dick Myott

GREAT FALLS • BILLINGS MONTANA BOISE IDAHO • GILLETTE WYOMING

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

June 6, 1979
Job Number 69-147-11
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: ART NEILL
40 EAST BROADWAY
BUTTE, MT 59701

Sample Identification:

On May 2, 1979, dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

ite No.	1	2	3	4	5	6	7	8
ab No.	27807	27808	27809	27810	27811	27812	27813	27814
ate Sampling Started	4/2/79	4/2/79	4/2/79	4/2/79	4/2/79	4/2/79	4/2/79	4/2/79
ate Sampling Ended	5/1/79	5/1/79	5/1/79	5/1/79	5/1/79	5/1/79	5/1/79	5/1/79
omponent (tons/sq. mile/30 days)								
otal Settleable Particulates	5.70	6.49	32.6	77.3	4.05	15.9	7.05	73.8
enzene Soluble Matter	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
ombustible Matter, (Non-Benzene Soluble)	1.00	1.08	15.2	25.3	1.38	3.19	3.61	3.39
nsoluble Matter	3.44	4.17	28.5	70.0	3.24	11.9	5.03	39.6
otal Inorganic Matter	5.70	6.49	32.6	77.3	4.05	15.9	7.05	73.8
ontana Dept. of Health & Environmental Sciences Insoluble Matter Color Code Number		3	4	3		3	6	3

Minus sign indicates less than the level reported was present in the sample.

Certified ____________________

cc: Western Energy Co. - Colstrip(1)
ATTN: Chris Cull
Montana Power Co. - Butte (3)

Northern
Testing
Laboratories
CONSULTING ENGINEERS

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date July 2, 1979
Job Number 69-147-11
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: ART NEILL
40 EAST BROADWAY
BUTTE MT 59701

Sample Identification:

On June 6, 1979, dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

ite No.:	1	2	3	4	5	6	7	8
ab [illegible]:	28036	28037	28038	28039	28040	28041	28042	28043
ate Sampling Started:	5/2/79	5/2/79	5/2/79	5/2/79	5/2/79	5/2/79	5/2/79	5/2/79
ate Sampling Ended:	6/4/79	6/4/79	6/4/79	6/4/79	6/4/79	6/4/79	6/4/79	6/4/79
omponent (tons/sq. mile/30 days)								
otal Settleable Particulates	3.63	7.29	27.2	36.6	8.10	16.9	6.84	15.9
enzene Soluble Matter	-0.01	0.07	0.22	0.23	-0.01	0.21	0.16	0.16
ombustible Matter, (Non-Benzene Soluble)	0.84	1.56	14.6	14.2	2.50	4.83	2.30	2.35
nsoluble Matter	2.07	5.23	24.1	32.3	5.65	13.5	3.76	3.61
otal Inorganic Matter	3.63	7.22	27.0	36.4	8.10	16.7	6.68	15.7
ontana Dept. of Health & Environmental Scienses Insoluble Matter Color Code Number	3	11	3	4	4	11	11	11

A minus sign indicates less than the level reported was present in the sample.

Certified ______________________________

cc: Western Energy Co. - Colstrip (1)
Attn: Chris Cull
Montana Power Co. - Butte (3)
Attn: Dick Myott

Northern Testing Laboratories
CONSULTING ENGINEERS

Report of: Dustfall Analysis
Colstrip Area Air Quality Monitoring

Date August 8, 1979
Job Number 69-147-11
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (2)
ATTN: ART NEILL
40 EAST BROADWAY
BUTTE, MT 59701

Sample Identification:

On July 13, 1979, dustfall samples were delivered to our laboratory for analysis. The analysis were conducted in accordance with ASTM D1739-70, "Collection and Analysis of Dustfall." The results of the analyses are as follows:

TEST RESULTS:

Site No.:	1	2	3	4	5	6	7	8
Lab No.:	30524	30525	30526	30527	30528	30529	30530	30531
Date Sampling Started:	6/4/79	6/4/79	6/4/79	6/4/79	6/4/79	6/4/79	6/4/79	6/4/79
Date Sampling Ended:	7/2/79	7/2/79	7/2/79	7/2/79	7/2/79	7/2/79	7/2/79	7/2/79
Component (tons/sq. mile/30 days)								
Total Settleable Particulates	11.1	4.95	23.1	94.4	50.9	12.6	23.6	4.14
Benzene Soluble Matter	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Combustible Matter, (Non-Benzene Soluble)	3.00	0.93	13.2	48.2	10.9	3.07	11.6	1.36
Insoluble Matter	8.18	2.09	19.6	86.5	40.8	9.63	15.3	2.26
Total Inorganic Matter	11.1	4.95	23.1	94.4	50.9	12.6	23.6	4.14
Montana Dept. of Health & Environmental Scienses Insoluble Matter Color Code Number	4	5	4	4	6	3	6	5

A minus sign indicates less than the level reported was present in the sample.

Certified ____________________

cc: Western Energy Co. - Colstrip (1)
Attn: Chris Cull
Montana Power Co. - Butte (3)
Attn: Dick Myott

RJ

WECO Hist

WESTERN ENERGY COMPANY

GENERAL OFFICES: 40 EAST BROADWAY, BUTTE, MONTANA 59701

Blgp
12/9/76
general

December 7, 1976

Mr. C. C. McCall, Administrator
Reclamation Division
Department of State Lands
Capitol Station
Helena, MT 59601

Dear Mr. McCall:

Attached herewith are two copies of the first analysis from the Air Monitoring Program which Western Energy has set up at Colstrip. Please note that Sample Site No. 5 has not been set up yet. The reason for this delay is that the landowner has denied us access to the designated site. I understand that Mr. Dave Maughan of the Health Department and Mr. Paul Gatzemeier of Western Energy are resolving this situation. If you have any comments or questions, please let me know. Thank you.

Sincerely,

Michael R. Grende

Michael R. Grende
Permit Supervisor

MRG/cay/B:15

cc: Paul Gatzemeier
David Maughan, w/enclosures

WESTERN ENERGY COMPANY

GENERAL OFFICES: 40 EAST BROADWAY, BUTTE, MONTANA 59701

Neil
For your information
Looks very high if
70 mg/liter^3 is the
upper limit standard.

January 10, 1977

1/11

Mr. Richard L. Juntunen
Reclamation Division
Department of State Lands
Capital Station
Helena, MT 59601

Dear Mr. Juntunen:

RE: Air Quality Sample Analysis

Attached herewith are two copies of the most recent analysis from the air monitoring program which Western Energy has set up at Colstrip. The status of sample site No. 5 has not changed as of this date. We are still seeking access to the subject area where site No. 5 is supposed to be located. If your Department has any questions relevant to this data, please do not hesitate to contact me.

Sincerely,

Michael R. Grende

Michael R. Grende
Permit Supervisor

MRG/cay/1:6

Attachment

cc: Paul Gatzemeier
David Maughan, w/enc.

WESTERN ENERGY COMPANY
GENERAL OFFICES: 40 EAST BROADWAY, BUTTE, MONTANA 59701

RTE.	A.T.	ASC.
TECH	[illegible]	ENF

February 23, 1977

I gave verbal OK 22 March 77. DM

Mr. Dave Maughan
Air Quality Division
Department of Health &
Environmental Sciences
Capitol Station
Helena, MT 59601

Dear Dave:

Attached is a location map showing Western Energy Company's new proposed location for Hi-Vol. No 3. As was discussed in your office, the site is approximately one-fourth of a mile from the present location. The proposed site will not interfere with the agricultural use of the land within the loop track. The site also provides easy access to a power source.

Please let me know if the site is acceptable so that we can relocate the Hi-Vol.

Sincerely

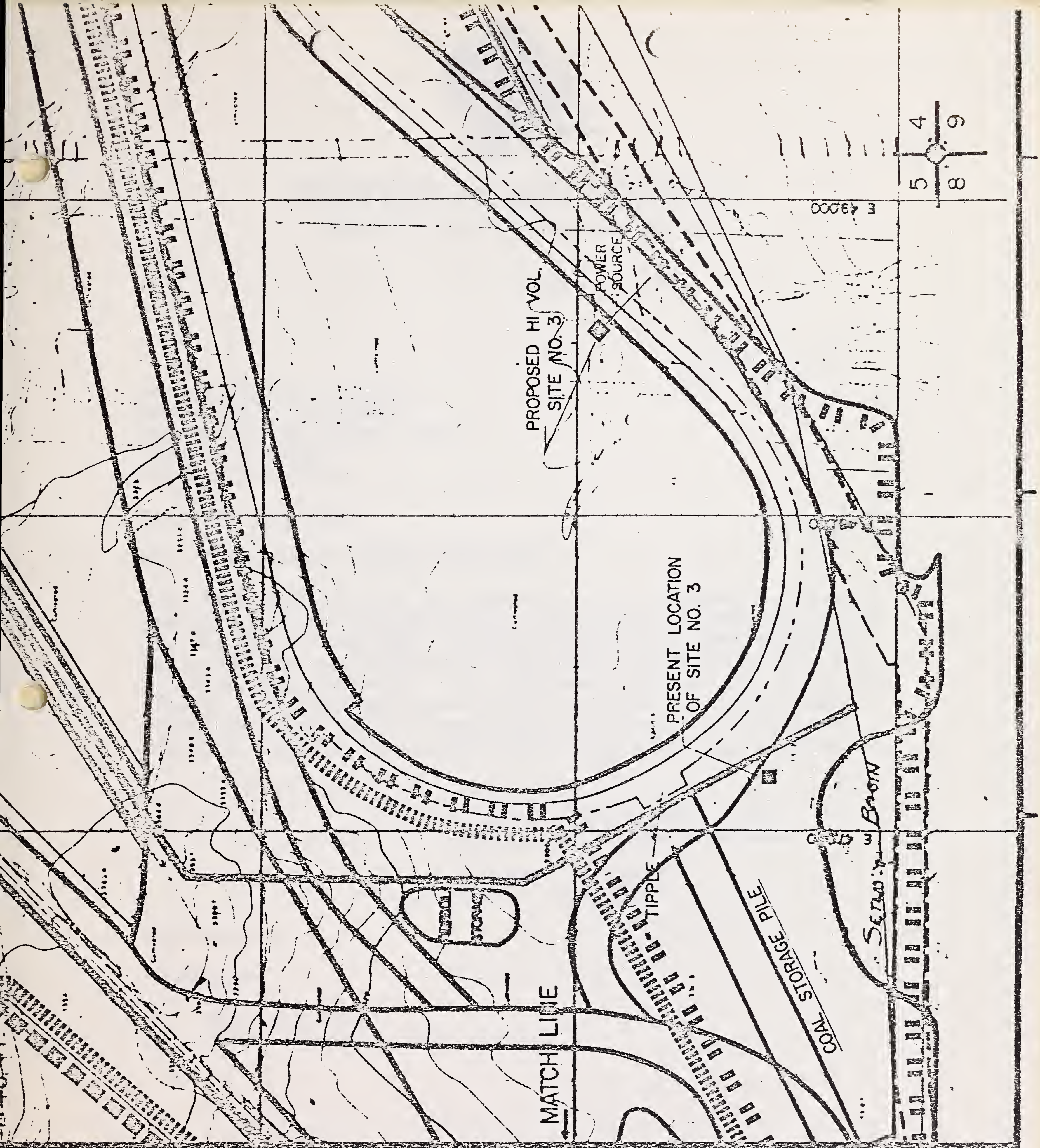
Michael R. Grende

Michael R. Grende
Permit Supervisor

MG/kk/e:3

Attachment

cc: C. C. McCall
Martin White



WESTERN ENERGY COMPANY

A	AG	DATE FEB 77
SIGNED	WB	SCALE 1" = 400'
ECKED	MRG	APPROVED

EXHIBIT A
ROSEBUD MINE
COLSTRIP, MONTANA
AREA A
AIR MONITORING PROGRAM

2 of 3

WESTERN ENERGY COMPANY
GENERAL OFFICES: 40 EAST BROADWAY, BUTTE, MONTANA 59701

RJ

March 4, 1977

Recd 3/7/77

Mr. Richard L. Juntunen
Reclamation Division
Department of State Lands
Capitol Station
Helena, MT 59601

Dear Mr. Juntunen:

RE: Air Quality Sample Analysis

Attached herewith are two copies of the December laboratory analysis of the air monitoring program which Western Energy has set up at Colstrip. Western Energy has just received approval from Mr. Farley to locate the proposed sample site No. 5 on his property. The equipment will be set up on this site at our earliest opportunity in order to provide additional monitoring. If your department has any questions relevant to this data, please do not hesitate to contact me.

Sincerely,

Michael R. Grende

Michael R. Grende
Permit Supervisor

MRG/kh/d:10

Attachment

cc: West Boettger
David Maughan - With Attach.

RJ

WESTERN ENERGY COMPANY

GENERAL OFFICES: 40 EAST BROADWAY, BUTTE, MONTANA 59701

March 24, 1977

Beg
3/28

Mr. Richard L. Juntunen
Reclamation Division
Department of State Lands
Capitol Station
Helena, MT 59601

Dear Mr. Juntunen:

RE: Air Quality Sample Analysis

Attached herewith are two copies of the January, 1977 laboratory analysis of the air monitoring program which Western Energy has set up in Colstrip. If you have any questions relating to this information, please do not hesitate to contact me.

Mr. Dave Maughan of the Health Department notified me by phone yesterday that Western Energy can move the number 3 high volume and the dust fall collectors to the new proposed location approximately one-quarter mile east of the tipple facility. Western Energy will move this monitoring site at our earliest convenience.

Sincerely,

Michael R. Grende

Michael R. Grende
Permit Supervisor

MRG/kh/d:12

Attachment

cc: West Boettger - without attachment
Dave Maughan - attachment

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

AIR QUALITY BUREAU
Cogswell Building
(406) 449-3454

~~John S. Anderson, M.D.~~
~~DIRECTOR~~
A. C. Knight, M. D.
Acting Director

March 31, 1977

Blg 4/11

Mr. Mike Grende
Western Energy Company
40 East Broadway
Butte, Montana 59701

Dear Mike:

Within the information I sent you on March 29 was a data reporting summary sheet. Item m at the bottom requires that you supply us only combustible and volatile particulate data as described in the ASTM procedure D 1739-70, 7.3.

We find that the benzene soluble, insoluble and total inorganic matter need not be reported as you have been doing unless you desire to continue such analysis.

If you have any questions, please contact me.

Sincerely,

DMaughan

David Maughan
Air Analyst

DM:kh

cc: C. C. McCall, State Lands

State of Montana, Coal Mine Data Reporting Summary, Air Quality Bureau - Helena

Location____________________________ Month____________ Company Name____________________

Station Number	Date	ug/m^3 [a]	1[b]	2[c]	3[d]	4[e]	5[f]	6[g]	7[h]	8[i]	9[j]	10[k]	11[l]	12[m]

No. Invalid Samples ____________ for the month. Company Signature____________________

a. Corrected to 760 MM Hg, 25° C.
b. Color intensity of hi-vol filter (use color code as supplied by AQB).
c. Estimated no. tons coal or overburden transported past the station (within approx. ½ mile), includes coal haulers, scrapers, trains during hi-vol operation.
d. Approx. no. daily vehicle trips past the sampler (within approx. ½ mile) to the grizzly at the crushing facility or the stock pile or the waste or reclamation area.
e. Estimated no. vehicles in operation (within approx. ½ mile) of the hi-vol during its operation. Include road graders, end loaders, cats, drills, scrapers, draglines, shovels.
f. Estimated no. tons of water dumped on the haul roads within approximately 1 mile of the hi-vol during its operation.
g. No. blasts made within approx. ½ mile of the hi-vol during its operation.
h. Daily inches precipitation as recorded at a local climatological station, ± 0.01 inches.
i. Mean wind speed in miles per hour, calendar day.
j. Mean wind direction (use 16 compass points), calendar day.
k. Mean ambient temperature, calendar day, in degrees centigrade.
l. Dustfall in tons per square mile.
[illegible] Organic content of dustfall, ASTM D 1739-70, 7.3 Combustible and Volatile Particulates including benzene solubles.

NORTHERN TESTING LABORATORIES

GREAT FALLS • BILLINGS MONTANA • BOISE IDAHO • GILLETTE WYOMING

Report of: Western Energy Air Quality Monitoring Sites Quarterly Calibration and Quality Assurance Audit

Date May 17, 1977
Job Number 69-147-1
Sheet 1 of 1

Report to: WESTERN ENERGY COMPANY (1)
ATTN: MR. WEST BOETTGER
P O BOX 67
COLSTRIP MT 59323

On May 13, 1977, our personnel conducted a quality assurance and calibration audit at the Western Energy Air Quality Monitoring Stations in the Colstrip area. The results are as follows:

Calibration Results and Quality Assurance Recommendations:

1. The high volume air samplers at all six sites were operating properly. The sampler at site 4 was drawing 43 standard cubic feet per minute. The samplers at sites 5 and 6 were drawing 42 standard cubic feet per minute. All the samplers were adjusted to draw 40 standard cubic feet per minute.
2. The field personnel appear to be operating the sampling stations in a conscientious and careful manner. All the sites were clean and orderly. We suggested to the field technician that he wipe the inside of the High Volume Air Sampler with a damp cloth to remove the particulates that had blown under the lid between sampling periods.
3. It appears that the flow data obtained since the last calibration are accurate and reliable.

Should you have any questions regarding the calibration and quality assurance audit, please contact us at your conveniece.

Very truly yours,

Jay C. Lyndes

Jay C. Lyndes, P.E.

cc: Western Energy Co. - Butte (2)
ATTN: Art Neill

WESTERN ENERGY COMPANY

GENERAL OFFICES: 40 EAST BROADWAY, BUTTE, MONTANA 59701

RJ

June 24, 1977

6/27

Mr. Richard L. Juntunen
Reclamation Division
Dept. of State Lands
Capitol Station
Helena, MT 59601

Dear Mr. Juntunen:

Attached herewith are two copies of the Hi-Vol and Dustfall analysis for the months of February, March and April. Also attached are two copies of the Quarterly Calibration and Quality Assurance Audit.

We have been evaluating the additional monitoring information that David Maughan submitted. We anticipate making these additional procedures a part of our program very soon.

Sincerely,

Michael R. Grende

Michael R. Grende
Permit Supervisor

MG/sa/E:6

cc: David Maughan w/attachment
West Boettger

WESTERN ENERGY COMPANY

GENERAL OFFICES: 40 EAST BROADWAY, BUTTE, MONTANA 59701

July 13, 1977

7/14 JW

Mr. Richard L. Juntunen
Reclamation Division
Dept. of State Lands
Capitol Station
Helena, MT 59601

Dear Mr. Juntunen:

Attached herewith is Western Energy Company's latest analysis from the air monitoring sites at Colstrip. I have discussed the higher readings for 5-1-77 with our operations personal and found that a high degree of reclamation activity was taking place at that time. The new recording procedures that Dave Maughan discussed with us last Thursday should help us identify the type of equipment and activities that is creating the dust. This new procedure will be implimented as soon as Western Energy receives the new recording forms.

Sincerely,

Michael R. Grende

Michael R. Grende
Permit Supervisor

cc/ David Maughan w/Attachments
West Boettger

MRG/amc

COLSTRIP

WASHINGTON STATE UNIVERSITY
PULLMAN, WASHINGTON 99163
AREA CODE 509

COLLEGE OF ENGINEERING
INSTRUCTION 335-5593 • RESEARCH 335-5591 • EXTENSION 335-4677

RTE.	ACT.	INC.
	FILE	
TECH	ADM	ENF

January 7, 1976

Mr. Dave Maughan
Dept. of Health and Environmental
Science
State of Montana
Helena, Montana 59601

Dear Dave:

During the latter portion of October, I wrote to you concerning my interest in the radioactive discharges from the fossil-fuel power plants of southeastern Montana. Since that time I have picked up another graduate student who would like to perform several preliminary experiments in regard to this topic. Therefore, we would appreciate your help in obtaining several fly ash samples from the Colstrip power plant stacks. Three or four samples of ~200 grams/each would be sufficient. It would also be helpful if we knew the ash content of the Colstrip coal. In addition, we would appreciate a couple of HV filters that were collected before and after the colstrip plant went into operation.

Sincerely,

Sherry O. Farwell

S. O. Farwell, Ph.D.
Assistant Research Chemist
Air Pollution Research

SOF:ds

RECEIVED
JAN 12 1976
MDHES
Environmental Sciences Div.
[illegible]

D. Maughan 18 March 1977

TSP Readings Eastern Montana thru Jan. 1977

Readings in micrograms per cubic meter

	Running Year Maximum++	Running Year Geometric Avg+	No. Samples
Morton Station (Decker)	208	56.6	54
*Warren Station (Hardin)	146	24.3	55
Lockwood School (Billings)	141	42.8	52
KGHL Station (Billings)	154	31.4	57
City Hall (Billings)	199	60.4	54
Grand Avenue School (Billings)	135	55.3	38
Laurel Jr. High (Laurel)	108	33.9	53
*Miles City - N.	87	17.9	44
*Glendive - E.	102	27.1	40
*Broadus - S.	62	15.9	57
*Lindsay - N.	38	13.0	33
*Lindsay - N.	60	14.5	34
*Fort Peck - W.	166	21.1	35
BN - Colstrip - SE.	104	28.3	109
*McRae - Colstrip - SE.	86	16.5	107
*Poplar - W.	173	20.7	53
*Scobey - N.	98	25.2	28
*Lame Deer - S.	131	9.8	22
Colstrip - Western Energy #2	116	55.6	9
Colstrip - Western Energy #3 (Townsite)	427	102.9	51

*Background stations in Eastern Montana

+ Primary standard = 75, Secondary standard = 60

++ 24-hour Standard = 260, 200, 150

DRAFT

Inter agency agreement

AIR QUALITY STUDIES IN THE VICINITY OF COLSTRIP

(An Interagency Research Agreement to Study
Pollutants in Selected Sites Near Colstrip 1 and 2 Plants)

INTRODUCTION

Colstrip, Montana and surrounding areas contain vast deposits of coal which can be readily stripped for operation of mine-mouth power plants. At the present time, two 350 MW power plants have been built and are in operation. In anticipation of this industrialization, environmental studies have been conducted by EPA, ERDA, Montana State, and other organizations to determine the natural quality of the air and the possible impact on air quality and on the surrounding environment. It has been recognized that by combining the efforts of EPA, ERDA, and possibly the Department of Health and Environmental Sciences of the State of Montana, that their individual objectives could best be met. The objective of this interagency agreement is to conduct a research program on air quality which will meet some of the long-range objectives of EPA and ERDA in accumulating basic information which we believe will be important in interpreting potential impacts on the environment.

This agreement specifically addresses the subject of operating four air quality stations in the vicinity of Colstrip in a manner which will measure, to the degree possible, some of the important gases and particulates which will impinge on the environmental quality of the area. One of these sites at Hay Coulee is presently equipped with EPA monitoring facilities which will be modified to meet current objectives and some of the current less essential activities will be eliminated. The three new sites will all require a portable source of power for operating real time analytical and sampling equipment. To the degree possible, it is planned to measure those airborne materials from the power

plants which may (1) have the greatest impact on the environment, or (2) be most indicative of the presence of the plume at the monitoring sites. At each of the monitoring sites exclusion plots have been established and are being studied under separate programs to determine any observable impact on the biota. There are also micrometeorological facilities at each site which are operated and would continue to be operated under this interagency agreement.

OBJECTIVE AND RATIONALE

The area surrounding Colstrip, Montana is one of the cleaner areas of the world in regard to industrial or other environmental pollution sources. The construction ofthe large coal-fired electric generating plants represents the first major impingement on this environment. The major question which this program addresses is whether the operation of such plants will have a significant environmental impact on the area, and, if so, what components of the effluents are most important. In this regard, it is considered that the airborne pollutants SO_2, sulphate, NO_x, ozone, and particulates will be of greated concern.

During the past two years, monitoring sites have been operated by EPA, ERDA, Montana State Department of Health and Environmental Sciences, and NOAA. These sites are shown on the map in Figure 1. This interagency agreement calls for the establishment of three additional monitoring stations at the sites indicated in Figure 1, together with the operation of the current EPA site at Hay Coulee. It is understood that the three sites currently operated by Pacific Northwest Laboratories would continue in operation with their present activities under ERDA sponsorship. The three new sites, plus the Hay Coulee site, will be relatively sophisticated air-monitoring stations and will provide additional basic data which should aid greatly in assessing the relationship between air quality and environmental effects. It is designed to meet the specific research

needs of EPA but also complement the ERDA and Montana State programs.

In this monitoring-research program, major emphasis will be placed on the quality of the data to insure that all the measurements are defendable, that the reliability of the monitoring equipment is precisely known, and that the errors associated with the laboratory analyses are within known limits.

In our research experience over the past three years dealing with measurements of clean air reaching the west coast of the United States on trans-Pacific trajectories, it was learned that cloud condensation nuclei (CCN) are by far the most sensitive indicator of air pollution. Therefore, we plan to operate a CCN analyzer at the Hay Coulee site and at each of the three additional sites. These analyses should give us the first, and by far the most sensitive, indication of the influence of the Colstrip plant power plant plumes at the monitoring stations. We believe that the next most sensitive indicator may be an SO_2 analysis. This, of course, would give a firm indication of the plume. It is recognized that the plume movement as controlled by the local meteorology may result in only diffuse concentrations of pollutants at all of the sites and that actual fumigating may occur very rarely, or not at all, at some of the sites. We therefore feel that it is essential to operate an SO_2 bubbler which would integrate the total SO_2 exposure at each site. This would provide a far more sensitive and therefore accurate indication of the total SO_2 exposure than the real-time SO_2 analysis. However, operation of real-time SO_2 analyzers will also be carried out since this will permit transient periods of fumigation to be identified.

The sulphate reaching the monitoring sites is also important and we plan to measure this on the air filters which will be employed for the collection of particles. We plan on using a two-stage particle separator which will separate the aerosol material into size ranges of less than and greater than 2 μ. We

anticipate that all of the sulphate will be associated with the smaller size fraction. Both of these fractions will be analyzed for some 20 to 40 trace elements, including most of those considered to be important from an environmental pollution standpoint.

Monitoring Sites

The three new monitoring sites, together with the present Hay Coulee site, which will be operated under this interagency agreement are shown on the map in Figure 1. All the equipment to be operated at the new sites is already present in the Hay Coulee site, along with an adequate power supply and protected laboratory space. At the new sites there is no electric power and we intend to provide it as follows:

At each of these sites, we will locate two small trailers approximately 1000' apart. One of these trailers will serve as a housing for 5 KW natural gas-powered electric generators. The natural gas will be passed through a charcoal filter to remove sulphur compounds which could result in a local pollution problem of its own. The electric power generated at the power trailer will be transmitted through a heavy-duty extension cord buried approximately one foot beneath the surface of the earth to the equipment trailer. The equipment trailer will be heavily insulated and equipped with heating and cooling equipment to maintain reasonably constant temperatures.

In the equipment trailer we plan to have the following instruments:

1. A continuous SO_2 monitor (Melloy Model 185)
2. Cloud condenser nuclei counter (Model Rich-100)
3. Two-stage aerosol particle size fractionator
4. NO_x monitor (Bendix 8100A) 8101B
5. Ozone monitor (Bendix Model 800 Z)

later installation

The latter two pieces of equipment may not be installed initially because of the limited capital resources available.

It is planned that the data from the continuous SO_2 monitor, the NO_x monitor, and the ozone monitor will be stored on a magnetic tape cartridge and also on a strip chart recorder. The strip charts will be kept for possible future reference, while the magnetic tape cartridges will be used to transfer the data for computer analysis at the Corvallis computer center.

Analysis, Data Handling, and Quality Assurance

The major analytical effort in this program will involve the analysis of the aerosol size fractions. Each of these fractions which will be collected on filter paper will be analyzed by X-ray fluorescence for up to 20 elements and also for sulphate. Approximately 5% to 10% of these samples will also be selected for neutron activation analysis which will permit the measurement of up to 40 trace elements. The trace elements which we expect to observe by each of these techniques are summarized in Table 1.

Our quality assurance program for the measurement of these trace elements is well established. It includes the analysis of known standards in conjunction with each of the sets of samples. For the X-ray fluorescence analysis, we analyze standard foils with each group of samples each day and, in addition, we repeat the analysis of one sample over the period of the entire research program to insure that the precision of the analysis has not changed. For the neutron activation analysis, we irradiate an NBS standard sample with each group of samples and carry it through the same radionuclide measurement scheme as the samples. The real-time SO_2 analyses are to be carried out with a Melloy Model 185 sulphur analyzer which has a sensitivity of 5 parts per billion. The operation of this instrument will be checked automatically each day by passing in

SO_2 from a standard calibration cylinder or a permeation tube. The SO_2 bubbler analysis will be carried out by our standard colorimetric technique using appropriate standards. In this procedure, we use pararosaniline-sulfamic acid and formaldehyde as the colorimetric reagents and tetrachloromecurate as the absorbing reagents. Standard calibration curves are prepared daily with freshly prepared $Na_2S_2O_5$ solutions prior to running blanks and samples. Typical sensitivity yielded is about .25 μmoles SO_2/l.

control H
40°C

The cloud condensation nuclei (CCN) counter must either be calibrated from standard aerosol concentrations or by comparing the response of a field instrument with a factory-calibrated instrument. Since it is impossible to generate standard aerosols in the field, we plan to operate a factory-calibrated instrument adjacent to each field instrument for a one-week period during each quarter of the year. This should assure that the response of the various field instruments is reasonably constant, or at least reasonably well known.

The ozone and NO_x measurements will be made with the Bendix Model 800 Z analyzer and the Bendix 8100-A 8101B analyzer, respectively. The response of the ozone monitor will be checked weekly using an ozone generator and quarterly using a "wet chemical titration" procedure. The NO_x monitor will be checked weekly using a standard calibration source of NO_2 and periodically using a standard fresh field source preparation prepared by Mine Safety Appliances.

NO_2
perm. tubes

Manpower Requirements

To optimize the utilization of manpower available from on-going EPA, ERDA, and Montana Department of Health and Environmental Sciences programs, we anticipate carrying out field programs as follows:

BNW will maintain one man at Colstrip to assure that the analytical instrumentation and sample collection equipment is working properly and to carry

out quality assurance programs. In addition to the work stated above, he will also perform necessary maintenance and change batteries as required on the micrometeorology stations. (In this regard, we will attempt to use our power supplies at the new sites to operate the micrometeorology stations so that battery changing will not be necessary.) This Battelle man will also carry out the SO_2 bubbler analyses and make arrangements for transferring both strip chart and magnetic chart data to the Battelle laboratories at Richland, Washington, and to the EPA computer center in Corvallis, Oregon. It is anticipated that the Battelle man will also oversee the efforts of an assigned EPA technician who will conduct various portions of the work as required.

David Maughan of the Department of Health and Environmental Sciences has suggested that we cooperate with them in carrying out the various programs at Colstrip. We feel that a cooperative program would be beneficial and we tentatively plan to have their electronics technician perform necessary maintenance work on the various instruments which we will employ in the air quality measurements. In return, we will ask the EPA fieldman to carry out the services which they have requested in their letter of October 29.

Time Schedule

We plan to have the three sites instrumented and in operation within 90 days after initiation of the interagency agreement. This will require the acquisition of considerable equipment and its installation at the three new sites. In carrying out this work, it is anticipated that EPA, Corvallis, will make necessary arrangements for installation of the trailers at the three sites. Specifically, we expect that 90 days after the interagency agreement is approved, we will have equipment in operation for the continuous monitoring of SO_2 and an SO_2 bubbler sampler, condensation nuclei, and for the collection of sulphate and trace elements in two particle sizes. Over a period of the next year as

capital equipment money will permit, we will purchase and install NO_x and ozone continuous monitoring equipment.

Equipment Costs

In this section, we have listed the approximate cost for the acquisition of the equipment which we believe should be operated at each site.

Instrumentation trailer	$2,500
Power trailer	1,500
5 KW power supply	1,200
SO_2 analyzer	4,500
Cloud condensation nuclei counter	3,000
Two-fraction aerosol collector	1,500
Master magnetic tape storage unit	2,500
1000' buried extension cord	1,000
(NO_x analyzer)	(6,000)
(Ozone monitor)	(4,200)
	$14,200
	($24,000)

It is planned that the three sites will have the equipment listed in the above tabulation, except for the NO_x and ozone monitoring equipment, in operation 90 days after initiation of the interagency agreement.

MEMORANDUM

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

From Wayne Wetzel Environmental Coor. Date: 7-21-[illegible]

To David Maughan Air Quality Bur. Subject: Yellowstone Air Quality

Attached is a draft incorporating some of the information you gave me. I would appreciate it if you could review it for completeness and accuracy. Also, any suggestions for additions, deletions, or re-wording are welcome.

Wayne Wetzel

Avoid Verbal Instructions

Studies conducted by Super (1973) at Colstrip concluded that;

1. Ground level inversions or isothermal layers are extremely common. (99% of 169 mornings sampled).
2. Calm winds might be expected 3% of the time annually; average seasonal and annual winds 307 and 1053 feet above ground level exceeded 10 miles per hour.
3. Fumigation, or high ground level pollution brought about by mixing of emissions within a stable ground-contact layer of air might be expected 40% of the time during early morning hours.

Although the Colstrip situation is unique, similarity between atmospheric conditions persisting at Colstrip and

---

Super, A., Data collected for assessing air pollution potential at Colstrip by the Dept. of Earth Sciences, MSU, Bozeman. (1973)

Wright

Air Quality

Air Pollution Potential

Air pollution potential is related to meteorological variables of wind, atmospheric stability and mixing depth. Wind acts as a direct dispersal agent, removing airborne pollutants from the source and diluting pollutants with surrounding air by turbulant action. Generally, high winds are conducive to dilution and dispersal and calm conditions are not. Atmospheric stability is related to existing vertical temperature gradients in the atmosphere. Stable conditions, such as those occuring during a ground-level temperature inversion, tend to concentrate pollutants near the surface and minimize dispersal.

Studies conducted by Super (1973) at Colstrip concluded that;

✓ 1. Ground level inversions or isothermal layers are extremely common. (99% of 169 mornings sampled).

✓ 2. Calm winds might be expected 3% of the time annually; average seasonal and annual winds 307 and 1053 feet above ground level exceeded 10 miles per hour.

✓ 3. Fumigation, or high ground level pollution brought about by mixing of emissions within a stable ground-contact layer of air might be expected 40% of the time during early morning hours.

Although the Colstrip situation is unique, similarity between atmospheric conditions persisting at Colstrip and

---

Super, A., Data collected for assessing air pollution potential at Colstrip by the Dept. of Earth Sciences, MSU, Bozeman. (1973)

many other stations in the Yellowstone basin suggest the conclusions drawn by Super (1973) might have wider application. Extention of these conclusions would dictate moderate to high air pollution potential during early morning hours on most days and persisting longer in winter than summer (deeper inversions in winter).

Air Quality

Only crude estimates of ambient air quality in the Yellowstone Basin are possible at this time due to a small number of monitoring stations. Data on total suspended particulates (TSP) is most complete. Monitoring stations are located at Billings (4 stations), Laurel, Forsyth, Miles City (2), Glendive and Sidney. In addition, rural monitors for TSP are located near Colstrip (2), Poplar, Lindsay (2), Fort Peck, Broadus, Scobey, Glendive, Ekalaka, and Lame Deer.

The background or ambient TSP can be estimated for Eastern Montana by examination of recent (1973, 1975-76) data for the "rural stations listed above. This data ranges from a high of 29 micrograms per cubic meter (ug/m^3) at the rural Glendive station to a low of 6 ug/m^3 at Lame Deer. The mean (15.4) and standard deviation (7.0) provide a bracketed value estimating normally present TSP. By comparing values of background air quality (15.4± 7.0) to values obtained in urban or industrialized environments, some measure of the degree of air quality reduction attributed to urban-industrial sources can be derived. This has been done for TSP for urban monitors in the Yellowstone basin. (Table ___).

TABLE_____

	Actual Annual TSP[1]	-Background[2]	=Urban-Industrial Contribution[2]
aurel	33	15	18
illings	$\overline{50}$*	15	$\overline{35}$
orsyth	36	15	21
iles City	$\overline{54}$**	15	$\overline{39}$
lendive	31	15	16
idney	26	15	11

. All values are average annual geometric means measured in ug/m^3 . The state standard (maximum allowable) is 75 ug/m^3.

. These values should be considered mean values that may vary accordingly to local background air quality. One standard deviation variance would include values within ± 7 ug/m^2 of each value.

* Mean of four monitors having mean annual values of 40, 30, 68, and 61 ug/m^3

** Mean of two monitors having mean annual values of 22 and 85 ug/m^3.

ource: Air Quality Bureau, Department of Health and Environmental Sciences.

In addition to TSP, carbon monoxide (CO) hydrocarbons (HC), oxides of nitrogen (NO_2), sulfur dioxide (SO_2), and total flourides (F) are monitored in the urban-industrial locations above. In table ___, quantitative data are expressed as a fraction showing actual values over the appropriate allowable standard. Qualitative remarks are 'best guess' estimates supplied by the Air Quality Bureau.[1]

---

[1] David Maughan, Air Quality Bureau, DHES

TABLE _____.

Cit	CO	HC	NO_2	SO_2	F
Laurel	Nil	exceeds standard	Nil	*.31/.25 (1 hr. max) .2/.5(3hr.) .08/.14 (24 hr.)	high
Billings	2.5/35 (average) 26.5/35 (max. 1 hr) *13.1/9 (max. 8 hr)	*1.29/.24 6-9 a.m.	.039(max.) .05	.15/.25 (1 hr. max)	Moderate
Forsyth	Nil	Nil	Nil	Nil	Nil
Miles City	Low	Nil	Nil	Nil	Nil
Glendive	Nil	Nil	Nil	Nil	Nil
Sidney	Nil	Nil	Nil	Nil	Low

* Exceeds standard
Standards are those adopted May 7, 1967 by the Clean Air Act of Montana Section 69-3909, Subsection 12.

Automobiles and petroleum refining generally are the major contributors to carbon monoxide and hydrocarbon levels respectively. Sulphur dioxide is normally the result of thermoelectric generation. Problems exist in the Laurel - Billings area as a consequence of the abundance of these activities in the proximity. With the exception of the standard violations in the above table, pollutant levels in cities of the Yellowstone basin are generally moderate to low in comparison

to existing state air quality standards.

Perhaps the most significant standards related to potential use of Yellowstone water for industrial development are the Environmental Protection Agency standards for prevention of significant deterioration (PSD). Stndards in effect for Montana would allow a maximum average annual increase of 10 ug/m^3 for TSP and 15 ug/m^3 for SO_2 above 1974 recorded ambient levels. This means that significant deterioration would occur at pollution levels well below the allowable maximum under the Clean Air Act of Montana and will eventually limit the localized growth of industries producing particulates and SO_2.

5/16/73

State of Montana - Air Quality Bureau - by David Maughan and Larry Holman

Determination of Background Air Quality for the Coal Development Area

Coal energy generation activities are expected to be operational in mid 1975 near Colstrip, Montana. At that time it will be necessary to monitor the air quality changes resulting from the generation operations and estimate the net air pollution contribution from those facilities. To determine the difference between then and now, current background air quality data is needed.

Those parameters that should be monitored in the Colstrip area are outlined below. Four monitoring locations will be developed. One site will be at the prevailing upwind direction from the generation facilities and two will be located at downwind positions. The fourth monitoring location will be a control site removed from the development area. Site selection parameters will include elevations, prevailing winds, human development activities, plant location and coordination with other background investigations in the area.

Because of limited variation in background from site to site, some parameters will not need to be sampled at all monitoring locations. This background study should include four years of data collection, i.e., one and one-half year background, about one year for the plant start-up and/or shake-down period and one and one-half years comparison study with the plant in operation.

Those parameters to be sampled and the number and type of sampling methods are as follows:

Parameter	Method	Number
Total suspended particulate including particle size and density	Hi-Volume Samplers	4
	Cascade Impactor	4
Settled Particulate	Dustfall Containers	10
Sulfur Dioxide	West Gaeke	4
	Continuous Coulometric SO_2 Analyzer	2
Visibility	Integrating Nepholometer	2
NO_x	Kristi Integrated Sampler	4
	Chemiluminescent NO_x Analyzers	2

Parameter	Method	Number
Wind Direction, Speed and Air Temp.	MRI Mechanical Weather Station	3
Humidity	Hygrometer	4
Sunshine Intensity	Pyrheliometer	4
Fluoride	Papers	4
	Vegetation	4
	Animals	4

Trace metal analysis could be performed on any of the suspended or settled particulate matter collected in the study.

The Air Quality Bureau currently has much of the experience and knowledge required to conduct such a study. Additional personnel will be needed to maintain and service the monitoring network. Also, the Air Quality Bureau is currently conducting a sampling program in southeastern Montana. Much of the current sampling is oriented near population and/or source centers. The current sampling network includes some 60 Low Sensitivity ~~monitoring~~ sites and is operated on a monthly schedule. The state's current study does compile background data for monthly periods excepting where hi-volume samplers are being operated on a weekly schedule. Those parameters currently being monitored are:

Parameters	Method	Number
Fluoride	Plate	44
	Papers	11
	Vegetation	28
Sulfation	Plates	54
Settled Particulate	Dustfall	26
Suspended Particulate	Hi-Volume	8
Wind Direction	Wind Vane	2
Wind Speed	Anemometer	2

To obtain background data suitable for the evaluation of an electrical generating plant, sophisticated equipment would be required. This "state of the art" type equipment would also be the equipment used to monitor an operating plant--thus direct data comparisons could be made.

It should be noted that the Air Quality Bureau investigation should be closely coordinated with other studies in the area. Soil, vegetation and animal studies will provide needed supplemental information for appraisal of background air quality.

As previously discussed, four rigid monitoring stations will be maintained for four years. An outline of funding requirements follows:

Monitoring Equipment
(including supplies and analysis for four year operation)

Total Suspended Particulates		4 Hi-volume Samplers	2,632
		1 Calibrated Oriface	74
Particle Sizing Equipment		4 Cascade Impactors	12,568
		1 Balance and Dehumidifier	2,575
Settled Particulates		10 Dustfall Containers	990
Sulfur and Nitrogen Oxides		2 Coulometric SO_2 Analyzers	19,300
		2 Chemiluminescent NO_x Analyzers	21,120
		1 SO_2 - NO_x Calibrator and Flow Monitors	7,425
		4 Integrated Bubble Samplers	3,127
Visibility		2 Nephelometers	13,850
Meteorological		3 Wind Systems	8,925
		2 Hydometers	1,520
		2 Pyrheliometers	4,450
Fluoride		4 Montana Boxes	1,020
General Equipment		4 Mobile Laboratories	12,000
		8 Miles Transmission Line	24,000
Personnel--Consider four years unless stipulated otherwise at 5% per year increase and indirect costs.	(12 mm/yr)	1 Chemist	52,625
	(12 mm/yr)	1 Technician	40,945
	(12 mm/yr)	1 Electronics Technician	40,945
	(3 mm/yr)	1 Service and Maintenance	13,792
	(3 mm/yr-3yr)	1 Air Pollution Meteorologist	11,033
	(12 mm/yr-2yr)	1 Statistician	24,600
Services		Per Diem (4-year)	12,000
		Travel	12,000
		Chemicals & Lab usage	6,220
		Computer Costs	4,000
		Miscellaneous Costs telephone, freight, refrigerator, security, supplies	8,000

14 July 1975

① Sept. 1971 we set up hi-vol (suspended particulate) sampling

static samplers $\left\{ \begin{array}{ll} SO_4^{=} & \text{(sulfation plates)} \\ F^- & \text{papers / veg.} \end{array} \right.$

↓

approx Fall 1973

info was gather mainly in southeastern Mont. cities eg. M. City, Broadus, L. Deer, Hardin, Forsyth, Sidney, Lodge Grass, Colstrip

In Colstrip: sampled in the town and at several locations near Colstrip

② Fall 1973 — resultant to Montana's new coal siting act The State's AQ Bureau, the state established with available funding two major background studies.

A. We set these stations up in locations which were removed from sources eg. road dust.

B. The BN site was chosen both as a backgd. where in the strip mining would be considered part of the backgd. It is located abt 250 ft above the natural gd. levels. It is abt. 2.7 miles SE of the plant site.

C. McRae Site about 13 miles SE. of the plant and again about 50 ft above the normal gd level.

From 1973 to the summer of 1975 the above monitoring was accomplished

Due to limited available funding we have curtailed our monitoring somewhat in June of this year (1975)

Result to date are as expected with low TSP, just detectable SO_2, NO_2 no CO. We just commenced HC monitoring but do expect no HC readings.
Ozone readings comprise our only significant backgd. readings with several summertime violation of national 1-hr. std.

What would we like to see accomplished?

We feel that in addition to our present sampling

cont.

Ⓐ 2 additional $\underline{SO_2}$ monitors within ½ mile of plants 1 & 2 especially with the Sept. start up of plant #1 [SE & in Colstrip]

Ⓑ 1 additional NO_x monitor with ½ mile SE.

Ⓒ Cont. Fluoride SE & BN site

Ⓓ acid aerosol sampling

E. Trace element studies using membrane filters

F. Ozone should to be continued

NO_x and carbonaceous compounds → O_x

The State has worked in cooperation with MPCo. and MSU for meteorological data collection to validate a dispersion model to the Colstrip area.

Using) meteorogical parameters and derived modeling results the two close in stations should be about 3/4 km NW and SE of the plant.

① 24 ft tower (24-hr samples) (48-hr samples)
box w/ sample changer → 2" IPC glass fiber
stagger → whatman filter 4" filter ✓
Anderson
Lungren ✓

② Bubbler battery } SO_2 1 l/min field exp in St. Louis

I BH site
II NW of town (~3 miles) B & R Cafe
III E → colstrip ~ 3½ miles ESE
IV Wally McElroys ⓐ ~ 15 miles SE.

NOAA 303 - 499-6296
Boulder, Colorado { Norm Abshire / Vernon Derr } { Laser & telescope / inversion layers

U.S. Dept Comm. Nat. Oceanic & Atmospheric Adm Env. Res. Labs Boulder, Colorado
499-1000

w/ LeFohn

Ft. Union Inn 9½ miles out
9.4 miles ↓ 4½ → East

July 7-8

Our Colstrip trailer

cut charts → M

span and zero → W [OR] F

	M	W	F
SO_2 –	✓	✓	✓
NO_x –	✓	(zero'd) ✓	✓
O_x –	✓	(internal span zero) ✓	✓
HC –	✓	(cylinders) ✓	✓
Hi Vol. –	1 in 6 days.		
M.R.I –	✓	✓	✓
Memb. –	1 in 6 days		
Time →	2.5 hrs	3.5 hrs	2 hrs

= 8 hrs/week

travel time 3 hrs/week

11 hrs/week

(1) more chart reading

or ~ 28% of 1 man

~ $70.00/yr gas & oil

we would suppy parts, charts, etc.

SE COAL AREA
#1

MONTANA POWER CO.
SITE #3
READINGS FOR TSP
TOTAL SUSPENDED PARTICULATES
75 μg/m³ PRIMARY
60 μg/m³ SECONDARY
STANDARD

MPC
SITE #3
1976
TSP

JAN	25.29	
	197.51	
	35.75	
	167.03	
	275.21	
FEB	51.30	
	131.83	
	154.31	
	146.81	
	50.82	
MAR	52.15	
	87.13	
	172.00	
	136.28	
	97.68	
APR	107.96	
	156.25	
	99.72	
	14.14	
MAY	57.45	
JUN	107.06	
	52.29	
	69.26	
	90.92	
JUL	52.45	
	86.28	
	69.56	
	89.30	
AUG	127.93	
	125.74	
	161.20	
	281.98	
SEP	50.04	
	76.32	
	26.43	
	139.74	
	204.65	
OCT	51.39	
	427.55	MAX
	173.43	
	47.46	
	90.71	
NOV	191.48	
	305.57	2nd MAX
	298.72	
	146.53	
DEC	179.79	
	46.47	
	266.06	
	166.23	
	145.06	

	~~107.96~~	
APR	~~156.25~~	
	~~39.72~~	
	~~14.14~~	
MAY	~~57.45~~	
JUN	~~107.35~~	
	~~52.29~~	
	~~69.25~~	
	~~90.92~~	
JUL	~~52.45~~	
	~~86.28~~	
	~~69.56~~	
	~~89.30~~	
AUG	~~127.93~~	
	~~125.74~~	
	~~161.20~~	
	~~231.98~~	
SEP	~~50.04~~	
	~~76.32~~	
	~~26.43~~	
	~~139.74~~	
	~~204.65~~	
OCT	~~51.39~~	
	~~427.55~~	MAX
	~~173.43~~	
	~~47.46~~	
	~~90.71~~	
NOV	~~191.48~~	
	~~305.57~~	2nd MAX
	~~298.72~~	
	~~146.53~~	
DEC	~~179.79~~	
	~~46.47~~	
	~~266.06~~	
	~~166.23~~	
	~~145.06~~	

....

128.71

85.34

102.39 GEO. MEAN

~~2.03~~

....

816 474-1376

MT. POWER
CALCULATION
103.65

ST [illegible]

TSP readings Eastern Montana Thru Jan 1977.

D. Maughan 18 March 1977 (24 hr readings in micrograms per cubic meter)

for ~~Running~~ Jan

		~~R.Y. max~~ STANDARD 260, 200, 150	R.Y. geo. ave. FEDERAL STANDARD 60	no. samples
Morton sta. (Decker)		208	56.6	54
* Warren sta. (Hardin)		146	24.3	55
~~Billings ... school~~				
Lockwood school (Billings)		141	42.8	52
KGHL sta.	Billings	154	31.4	57
City Hall	Billings	199	60.4	54
Grand Ave School	Billings	135	55.3	38
Laurel Jr. Hi.	Laurel	108	33.9	53
* Miles City-N.	~~Miles City~~	87	17.9	44
* Glendive-E.		102	27.1	40
* Broadus-S.		62	15.9	57
* Lindsay-N.		38	13.0	33
* Lindsay-N.		60	14.5	34
* Fort Peck-W.		166	21.1	35
BN-Colstrip-SE.		104	28.3	109
* McRae Colstrip-SE.		86	16.5	107
* Poplar-W.		173	20.7	53
* Scobey-N.		98	25.2	28
* Lame Deer-S		131	9.8	22
Colstrip-West. Energy #2		116	55.6	9

FOR RUNNING YEAR: MAXIMUM READING

FOR RUNNING YEAR: GEOMETRIC MEAN

[COLSTRIP-WEST. ENERGY #3 NOT ON THIS ~~HERE~~]

* background stations in Eastern Montana

INVENTORY MADE
IN SEPT & OCT 1976

COLSTRIP, MONTANA
MONTANA POWER SITE NUMBER 3

Description

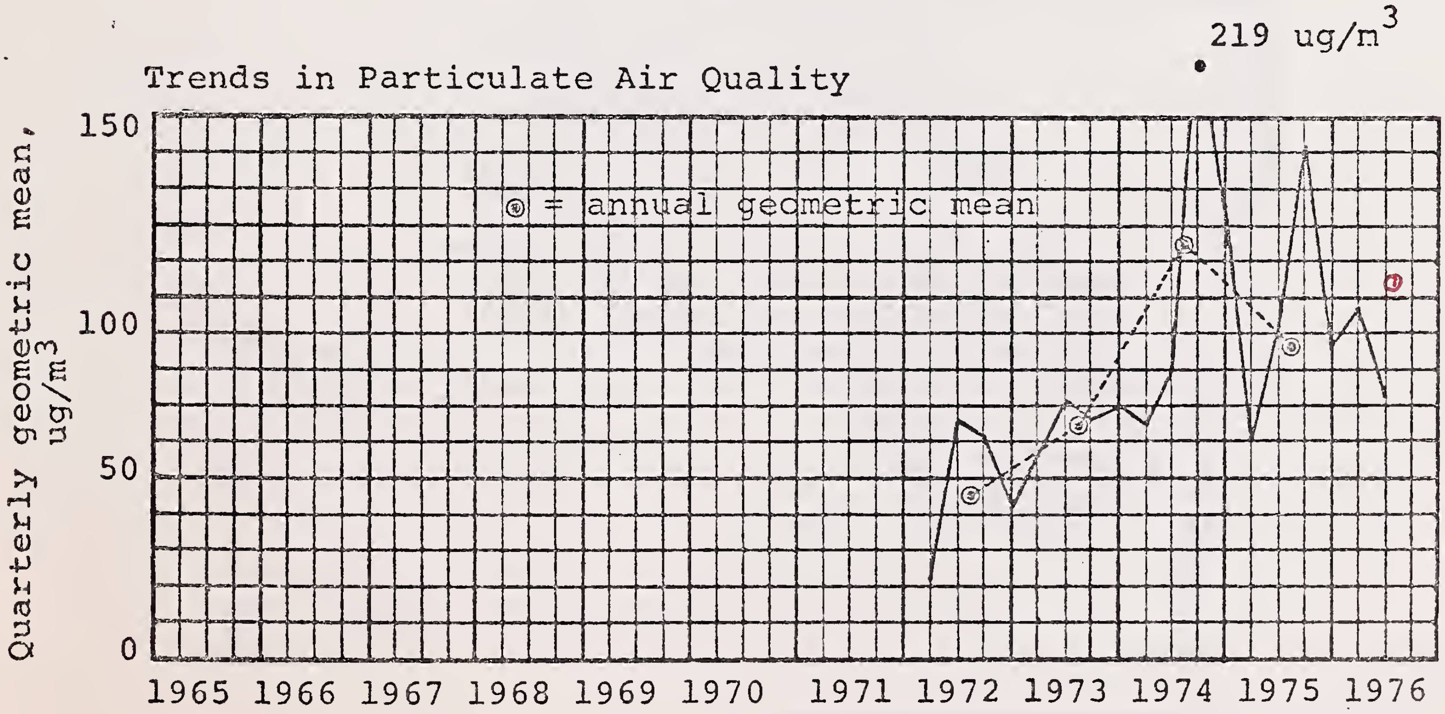
General site description - The sampler is located on the roof of a small shed about 12 feet above ground level. It is in a residential area and is set back about 50 feet from a local street.

Localized pollution influences - There is a small unpaved alley immediately adjacent to the sampler. This alley is quite short and bumpy and is not conducive to speeds over 10 mph. Other roads in the vicinty are paved, curbed and guttered, but also are rather dusty. Three hundred feet or so to the east is a park which has recently been under construction. Perhaps 90 percent of the town has been constructed during the 5-year period of sampling. A coal strip mine dragline operation is about 0.8 miles to the west and another is about 1.0 miles to the south. A coal-fired steam generating plant is about 0.5 miles to the southeast.

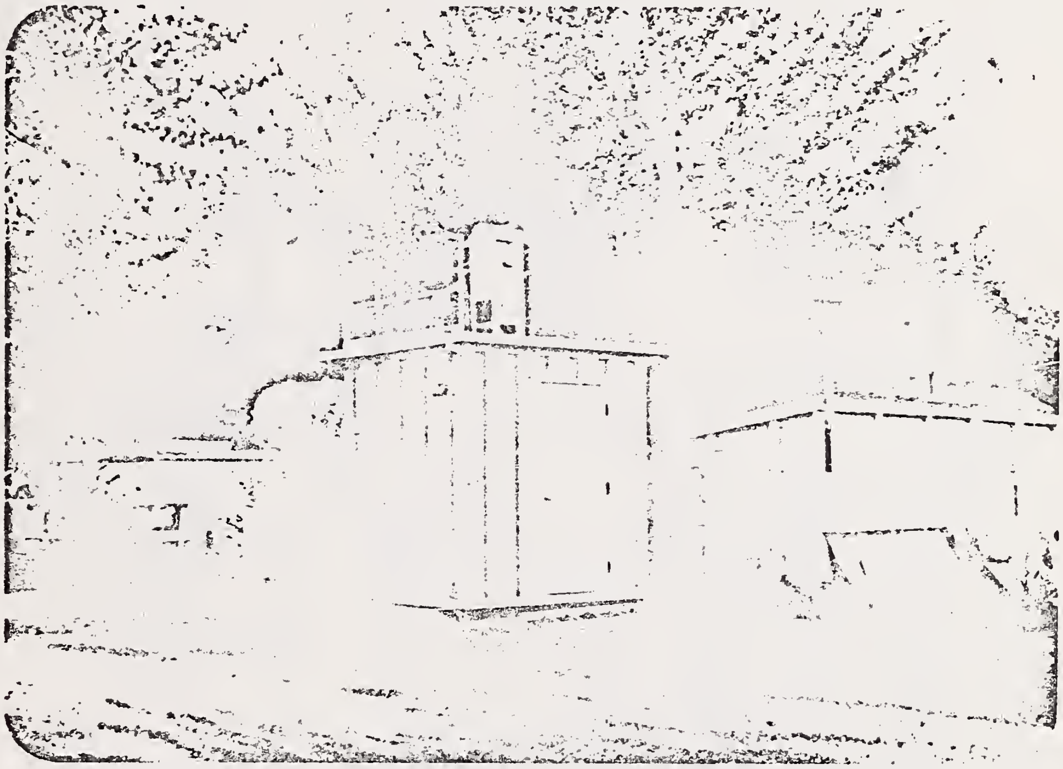
Physical interferences - There are numerous broad-leafed trees to the west and south which would tend to collect some particulate matter that the sampler might otherwise measure. There are no buildings in the vicinity which would affect the readings.

Terrain - The area immediately surrounding the sampler is flat. Beyond the perimeter of Colstrip the land is comprised of gently rolling to semirugged hills. The elevation of the sampler is 3320 feet MSL.

Trends in Particulate Air Quality



Comments - The sampler is probably providing a representative sample of the ambient air to which the residents of Colstrip are exposed. It is unlikely--because of the necessary speed limitation--that the alley adjacent to the sampler is contributing more than 5 ug/m^3 to the annual geometric mean concentration recorded at that site. The overhanging trees are probably reducing concentrations by a similar, if not greater, amount.



~~Figure~~ 1. Sampler viewed to the northwest.

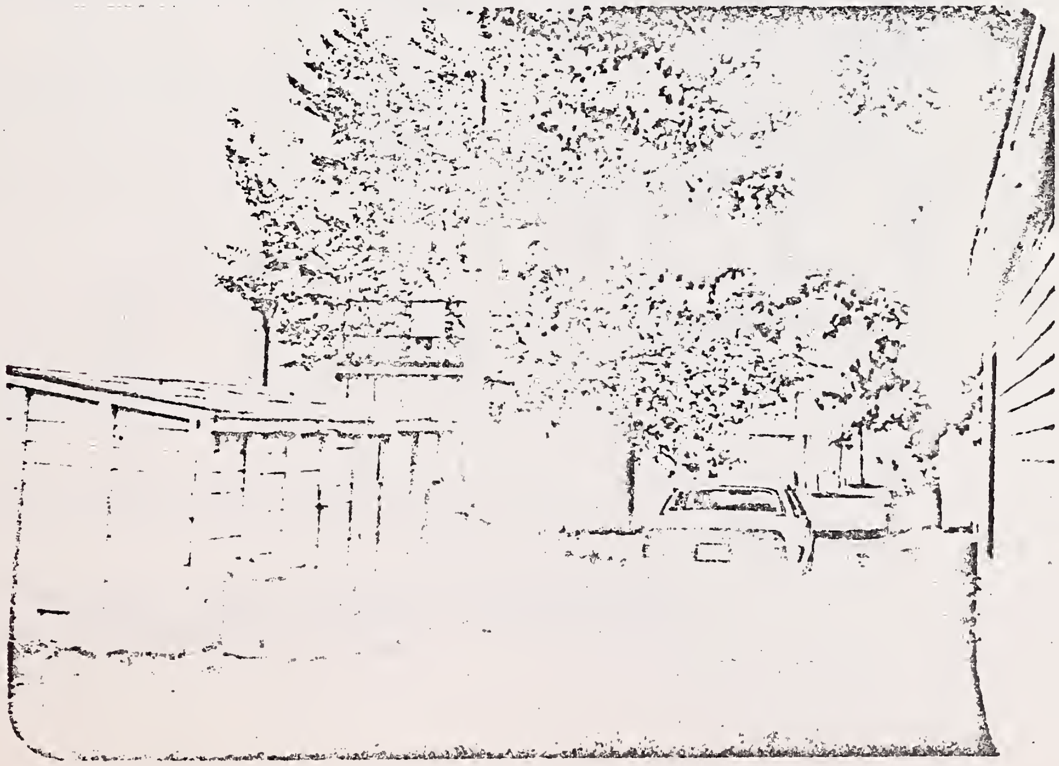


Figure 2. Sampler viewed to the south-southeast.

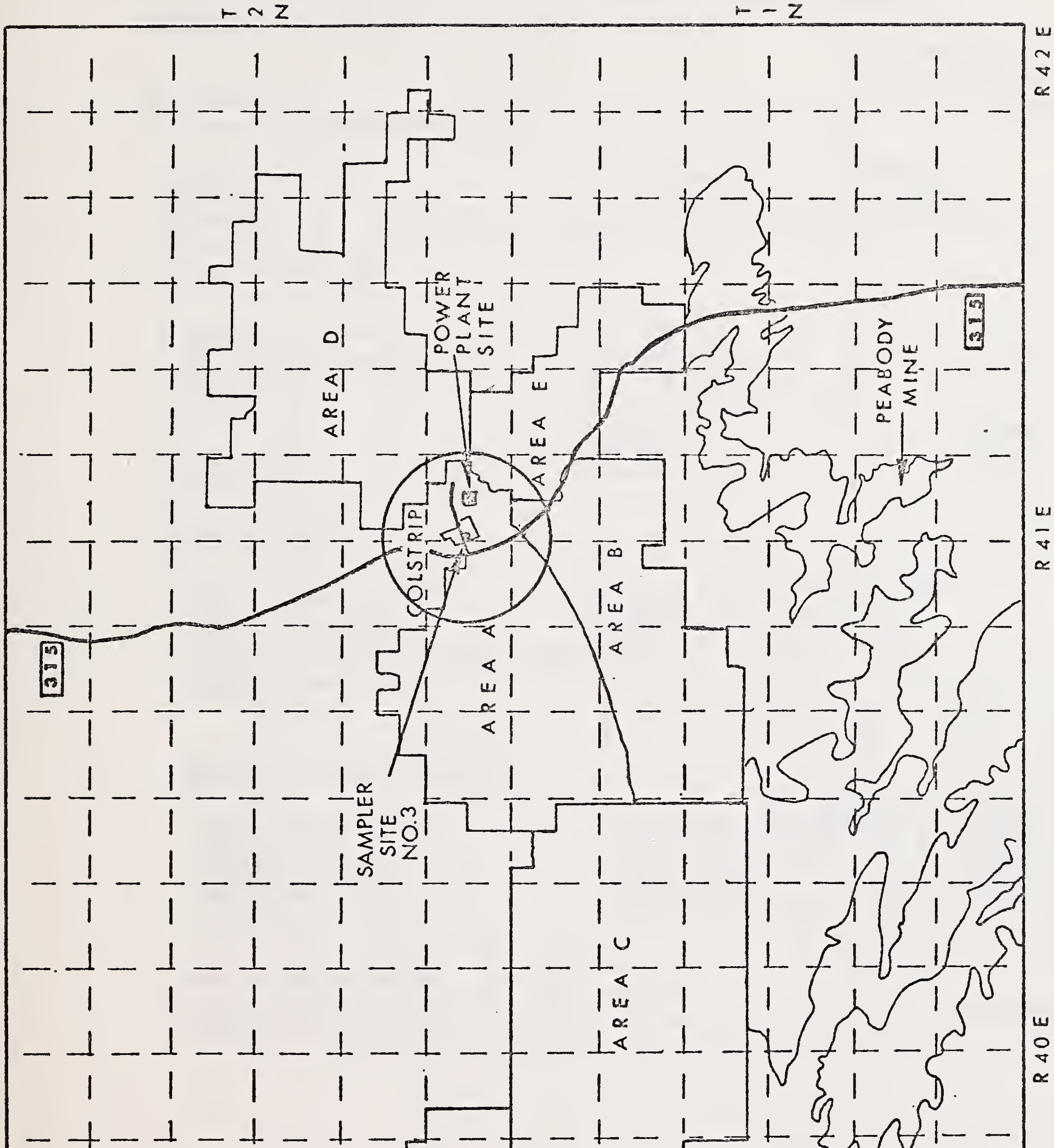


Figure 3. Map showing location of Colstrip microinventory area.

Sources in Microinventory Area (1 mile radius)

Colstrip

Population = 1,800
VMT/Day = 1,880(est)

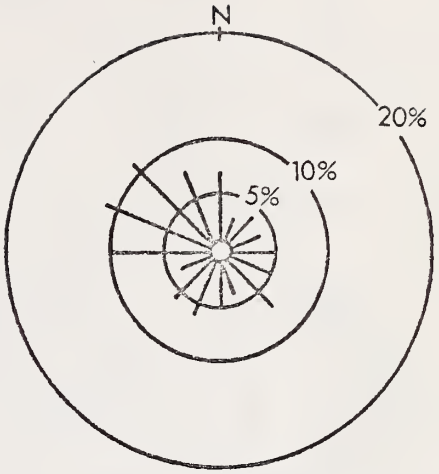
Source category	Size or activity rate	Emission factor	Partic emissions, ton/yr
Point sources:			
1 Montana Power Colstrip Units 1 & 2	Under construction		0
2 Area A	$(1.4\ \text{km})^2$, 2.4×10^6 ton/yr	1.3 lb/ton	1560
3 Area B	None	1.3 lb/ton	0
4 Area E	None	1.3 lb/ton	0
Area sources:			
Fuel combustion	From Montana emission inventory report, 24% of county pop		8
Incineration			neg
Other mobile(incl rail)			5
Motor vehicle exhaust	1880 VMT/day	0.56 g/VMT	neg
Fugitive dust sources:			
Unpaved roads	3.0 mi, 36 ADT	3.8 lb/VMT	75
Paved roads	1880 VMT/day	7.9 gm/VMT	6
Agriculture	970 acres	.01 t/ac/yr	10
Construction	530 acre-mo	0.6 t/ac/yr	318
Total emissions, ton/yr			1982
Emission density, ton/sq mi/yr			631

Meteorological Data[a]

Average annual
wind speed = 10.8 mph

Annual precipitation -
1974 = 13.23"
normal = 13.48"

No. of days
with precipitation = 93
≥ .01" (1974)



Montana State University data
Colstrip - 11/71 to 11/72

Maximum Recorded Concentrations

1972 = 166, second high = 127 ug/m^3
1973 = 190, second high = 154 ug/m^3
1974 = 612, second high = 515 ug/m^3
1975 = 413, second high = 309 ug/m^3
1976 = ~~275~~, second high = 198 ug/m^3 (through July, 1976)
427 oct

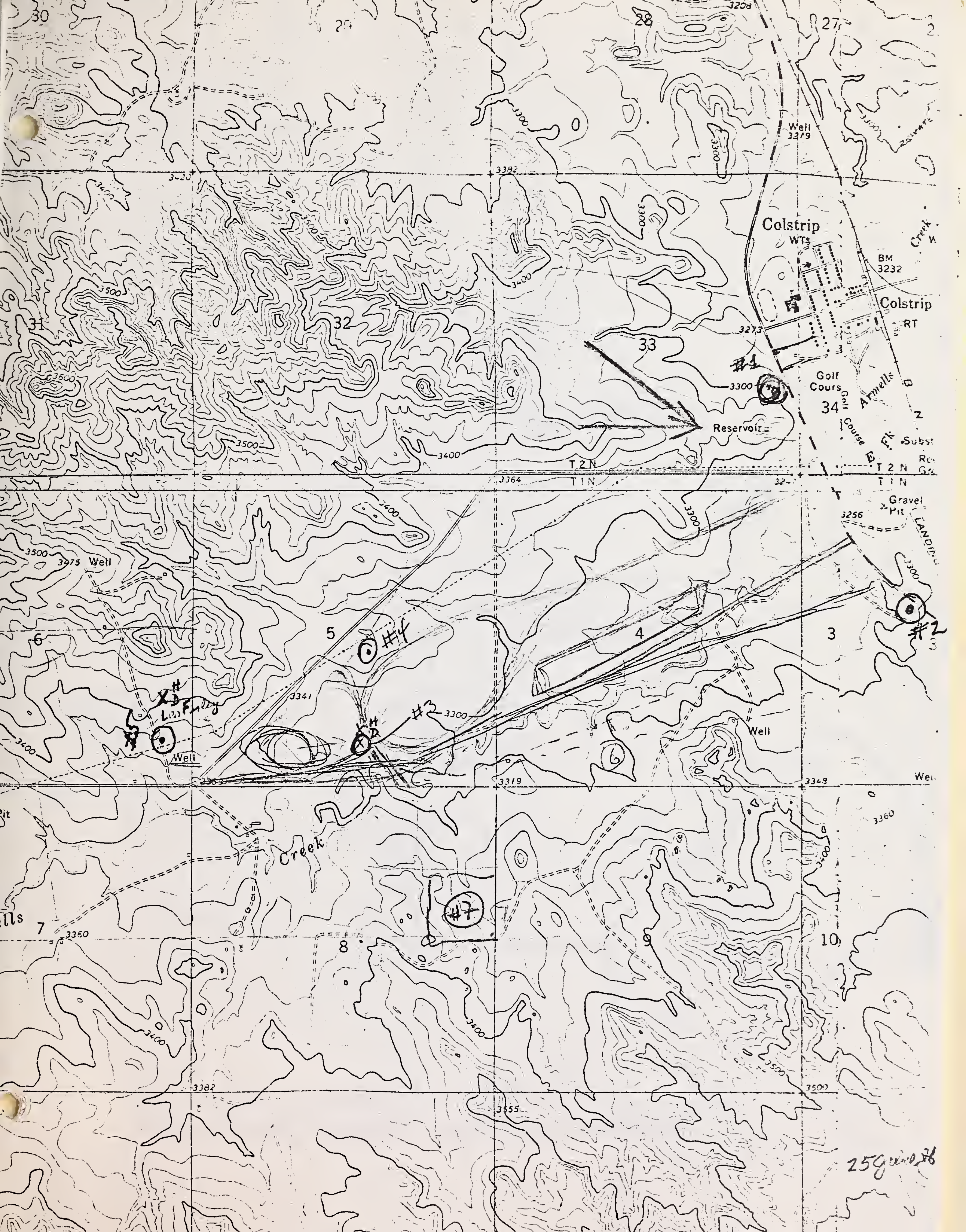
Summary and Conclusions

The Colstrip site has shown a marked worsening in particulate air quality from 1972 to 1976: the annual geometric mean changed from 46 ug/m^3 in 1972 to 86 ug/m^3 in 1975. Values were at their highest during the mid part of 1974 but those data are somewhat suspect due to an inadaquate number of samples being recorded that year. There is a clear seasonal variation in concentrations, with the spring and summer quarters being the worst.

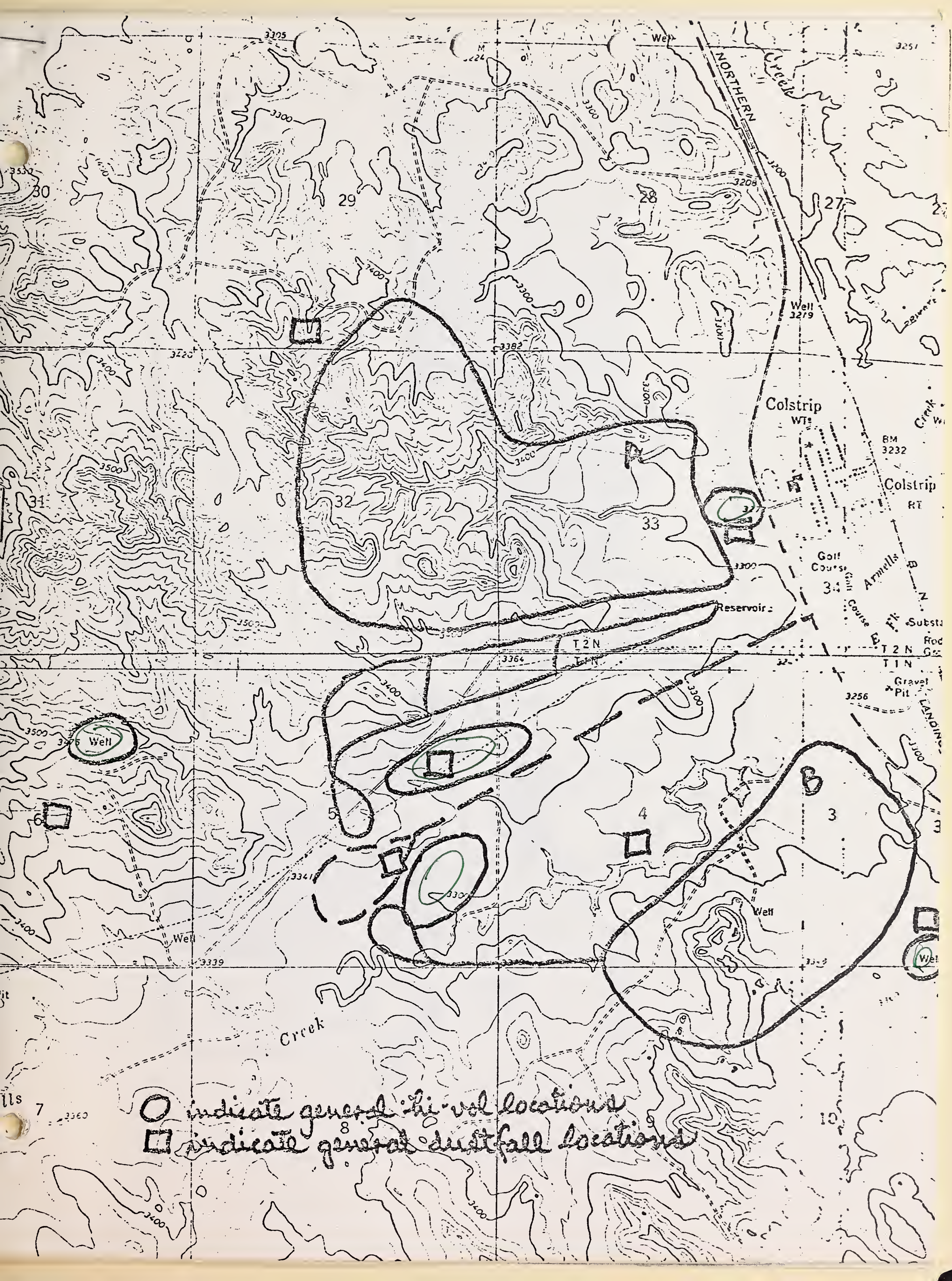
An inventory of emission sources within 1 mile of the sampler in 1974 suggests that a majority of emissions were caused by mining and construction activities. Resulting emission density of 631 ton/sq mi correlates fairly well with the 1974 measured concentration.

Prevailing wind directions, the relative aridity of the land, and the dramatic seasonal variation in particulate concentrations points to fugitive dust sources as the most probable cause of the high annual averages. Worsening of air quality from 1972 to 1976 is most logically attributed to a combination of fugitive dust from construction in the town and strip mining in Area A. An analysis of emission sources within one mile of the sampler and a visit to the site on September 28, 1976 supports this conclusion.

[a] Based on Billings data except for wind rose and wind speed.


30
29
28
27
3208
Well
3219
3420
3400
3382
3300
Colstrip
WTs
BM
3232
Colstrip
RT
Creek
3500
31
32
33
3273
#1
3300
Golf
Cours
Golf
Course
34
Armells
Reservoir
E. Fk.
Subst
3600
3500
3400
T 2 N
T 1 N
3364
T 2 N
T 1 N
Gravel
Pit
3256
LANDING
3300
3400
3500
3475
Well
6
5
#4
4
3
#2
#3
3300
3341
X H D
Lee Fuller
Well
Well
3319
3349
Well
3360
Creek
#7
7
3360
8
9
10
3400
3400
3500
3500
3382
3555

25 June 76



Colstrip
WTs
Colstrip
RT
NORTHERN
Creek
Well
3279
BM
3232
Golf
Course
Reservoir
Armells
Substa
T 2 N
T 1 N
Gravel
Pit
LANDING
Creek
A
B
27
28
29
30
31
32
33
34
3
4
5
6
7
8
9
10
3305
3224
3257
3300
3200
3208
3400
3220
3382
3500
3364
3256
3375
3341
3339
3360
○ indicate general hi-vol locations
□ indicate general dustfall locations

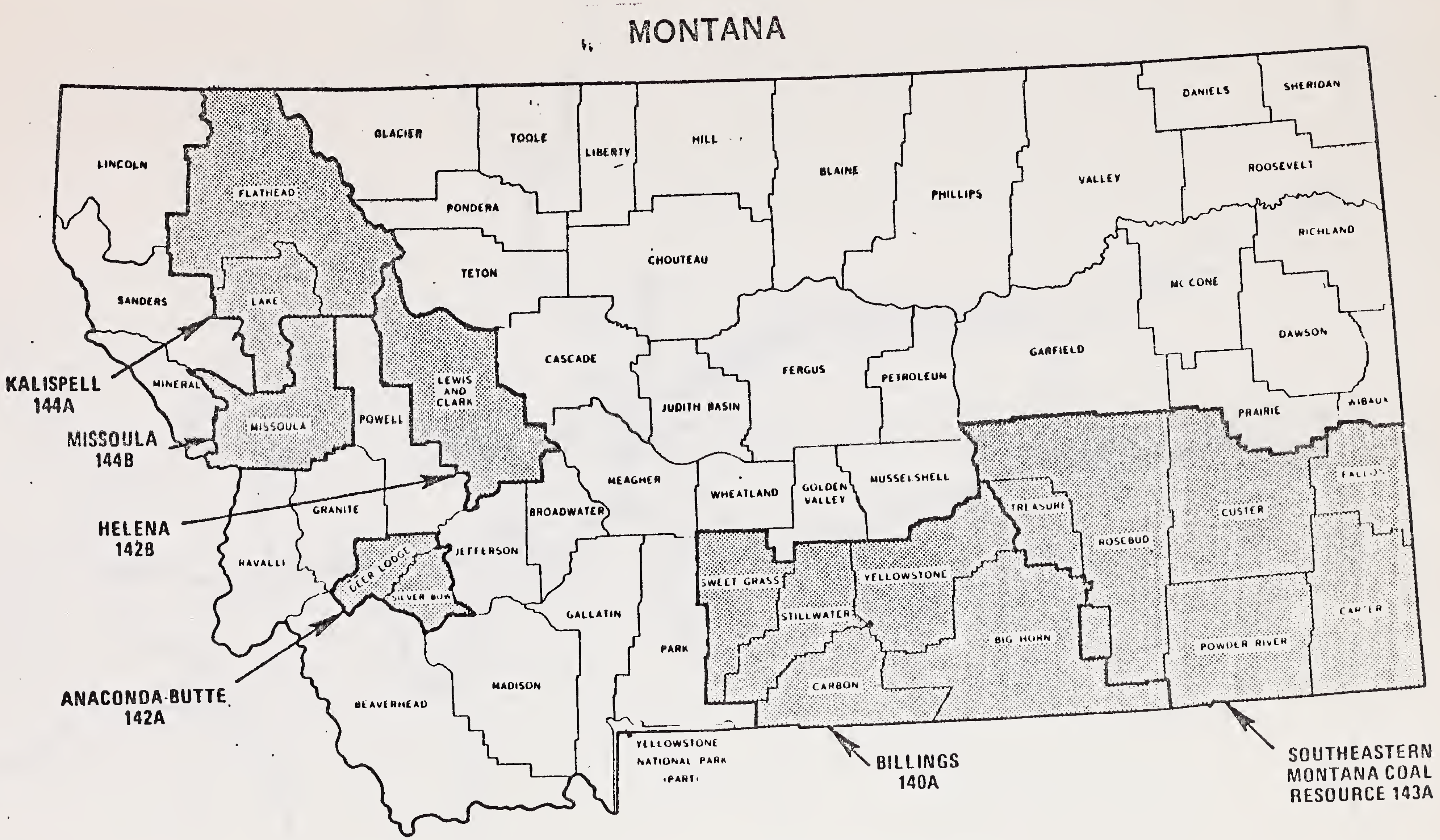


Figure 28. Air Quality Maintenance Areas in Montana.

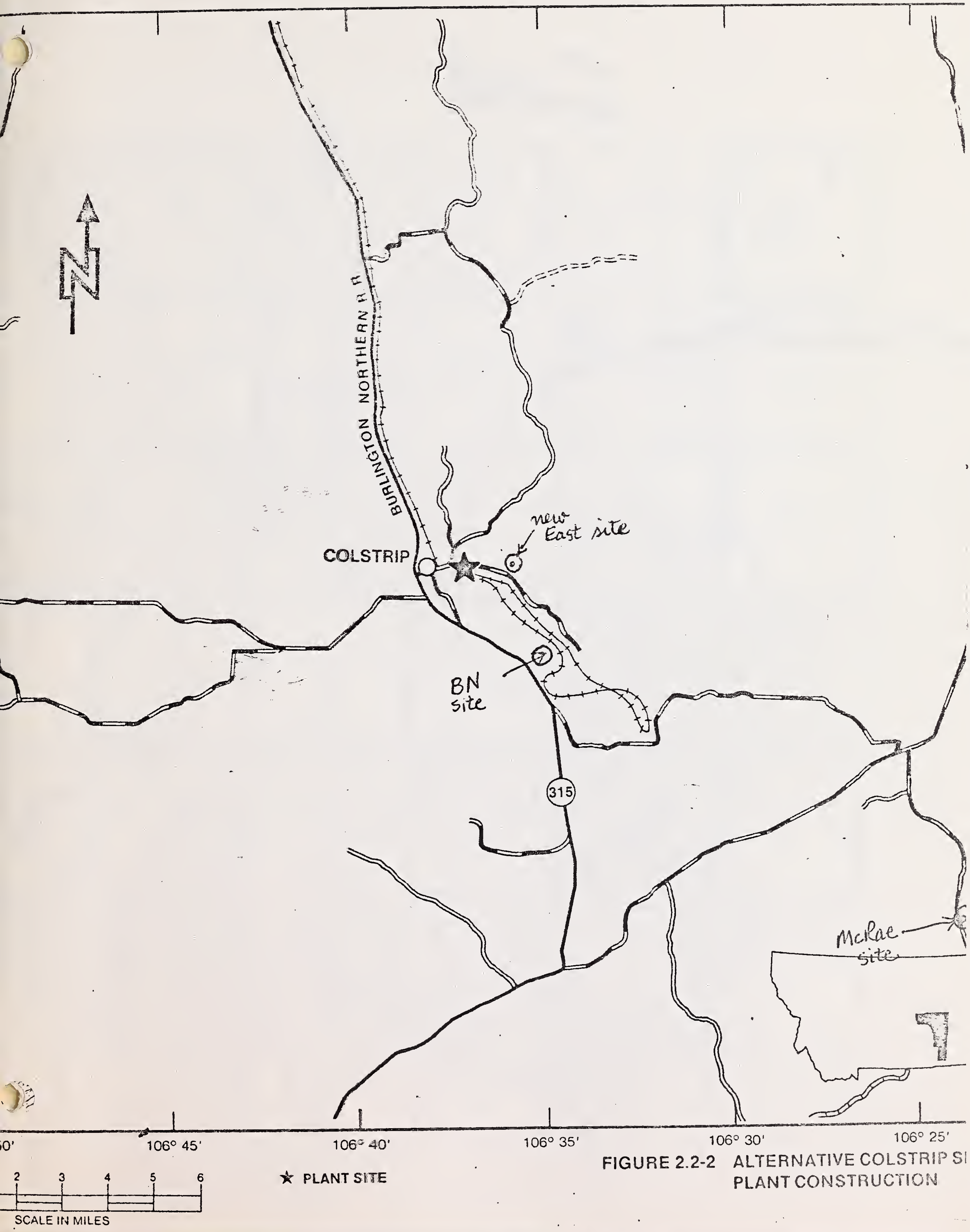
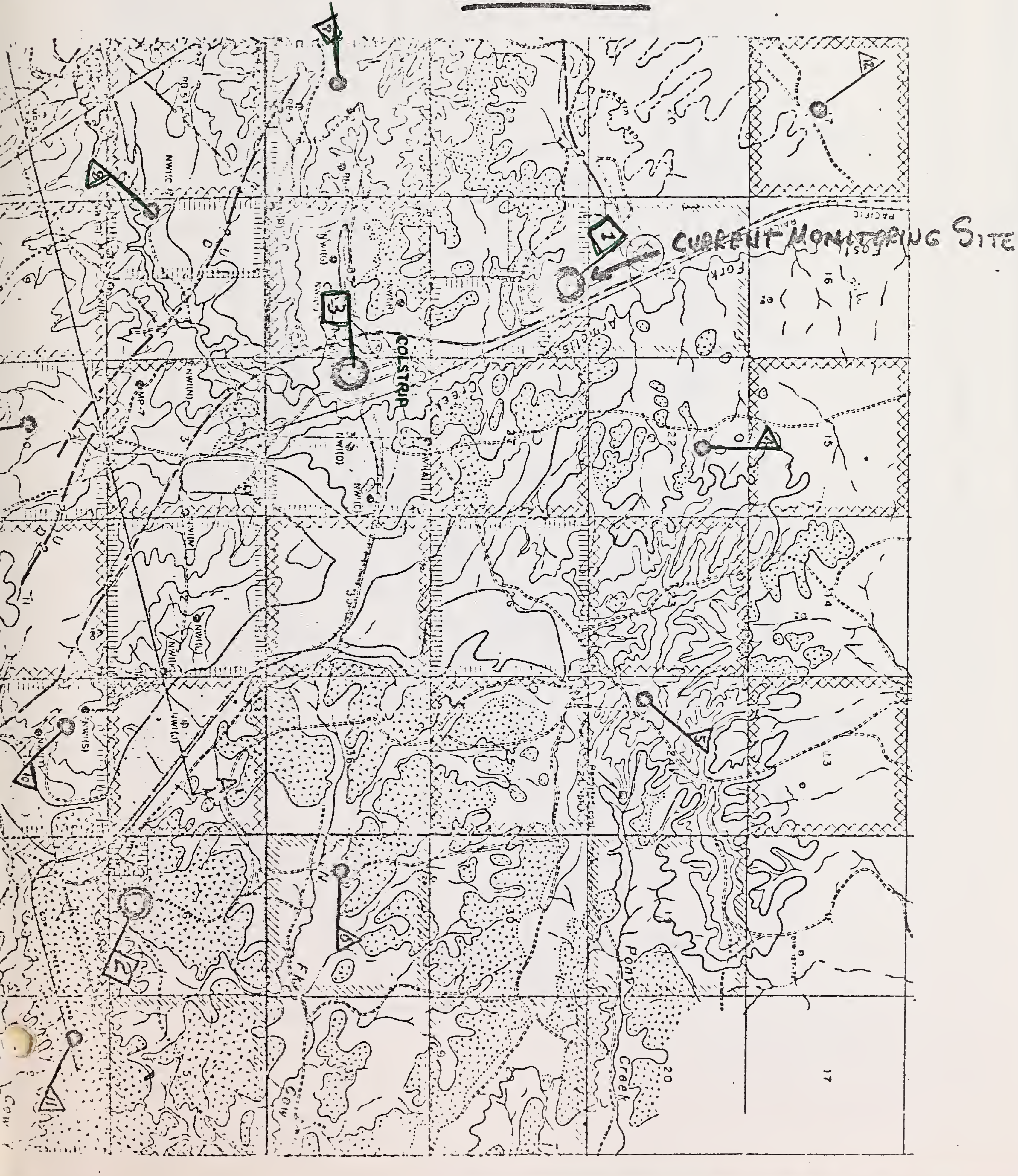


FIGURE 2.2-2 ALTERNATIVE COLSTRIP SI
PLANT CONSTRUCTION

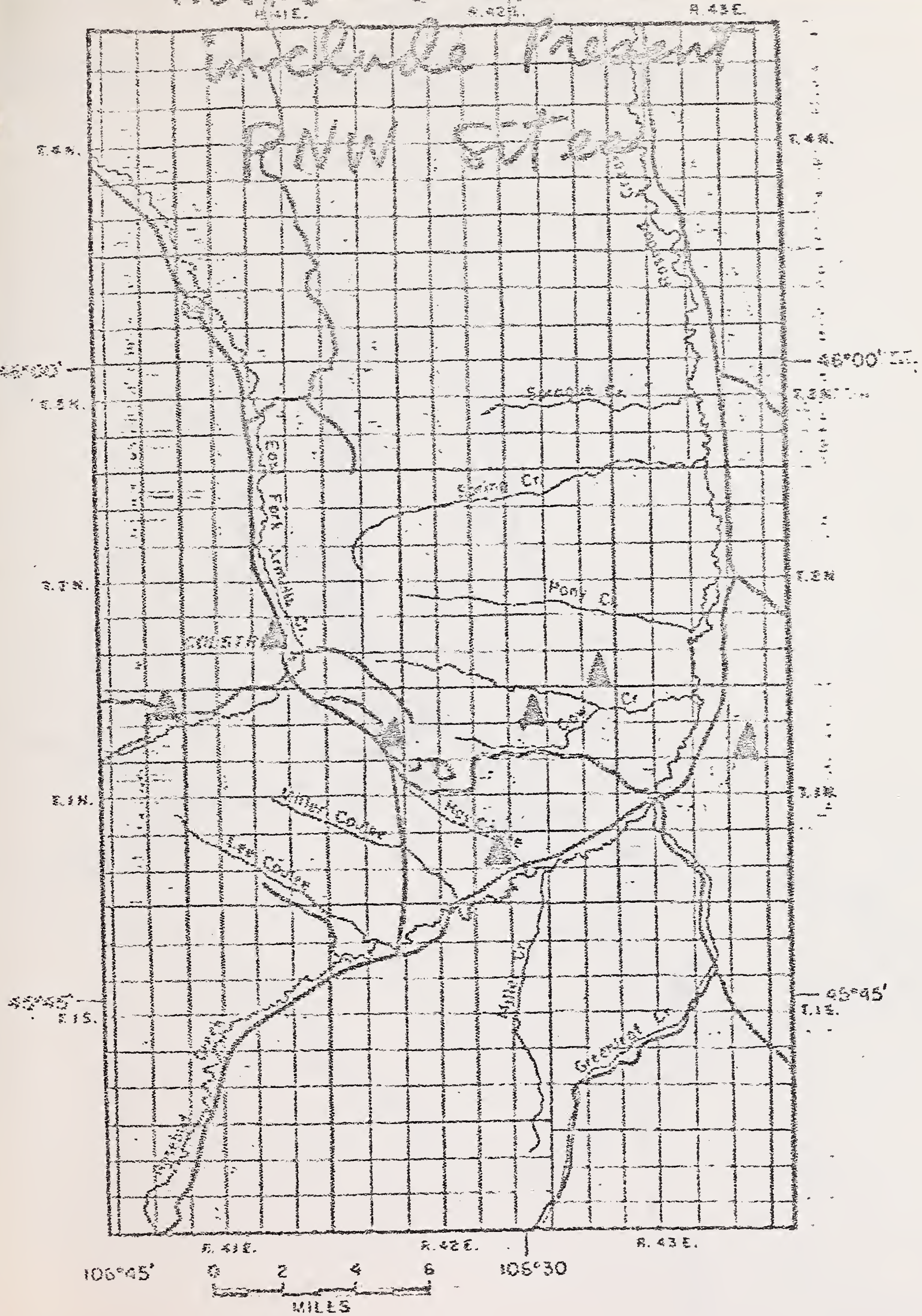
SKETCH #2


CURRENT MONITORING SITE
1
3
COLSTRIP
2
PACIFIC
East Fork
Armells
Creek
Pond
Creek
Cow

Proposed reservoir -

include present

RNW sites



Colstrip Air Monitoring

Prepared June 26, 1975, D. M., AQB, Helena Montana

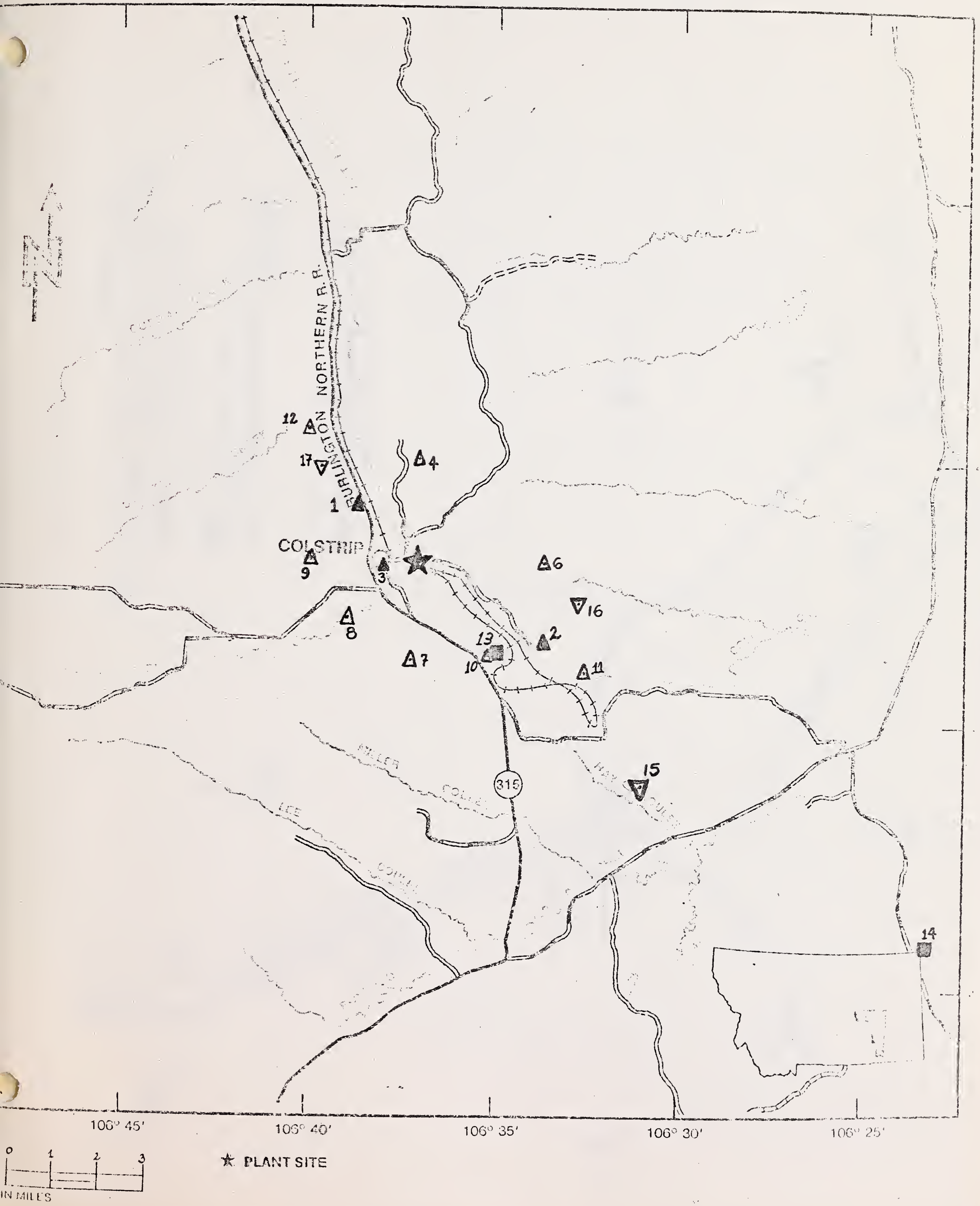


EXHIBIT 117

COLSTRIP ENVIRONMENTAL MONITORING SITES

◎ PRIMARY SITE — 1, 2, 3
○ SECONDARY SITE — 4, 6, 7, 8, 9, 10, 11, 12

0 1/4 1/2 1 2
SCALE IN MILES

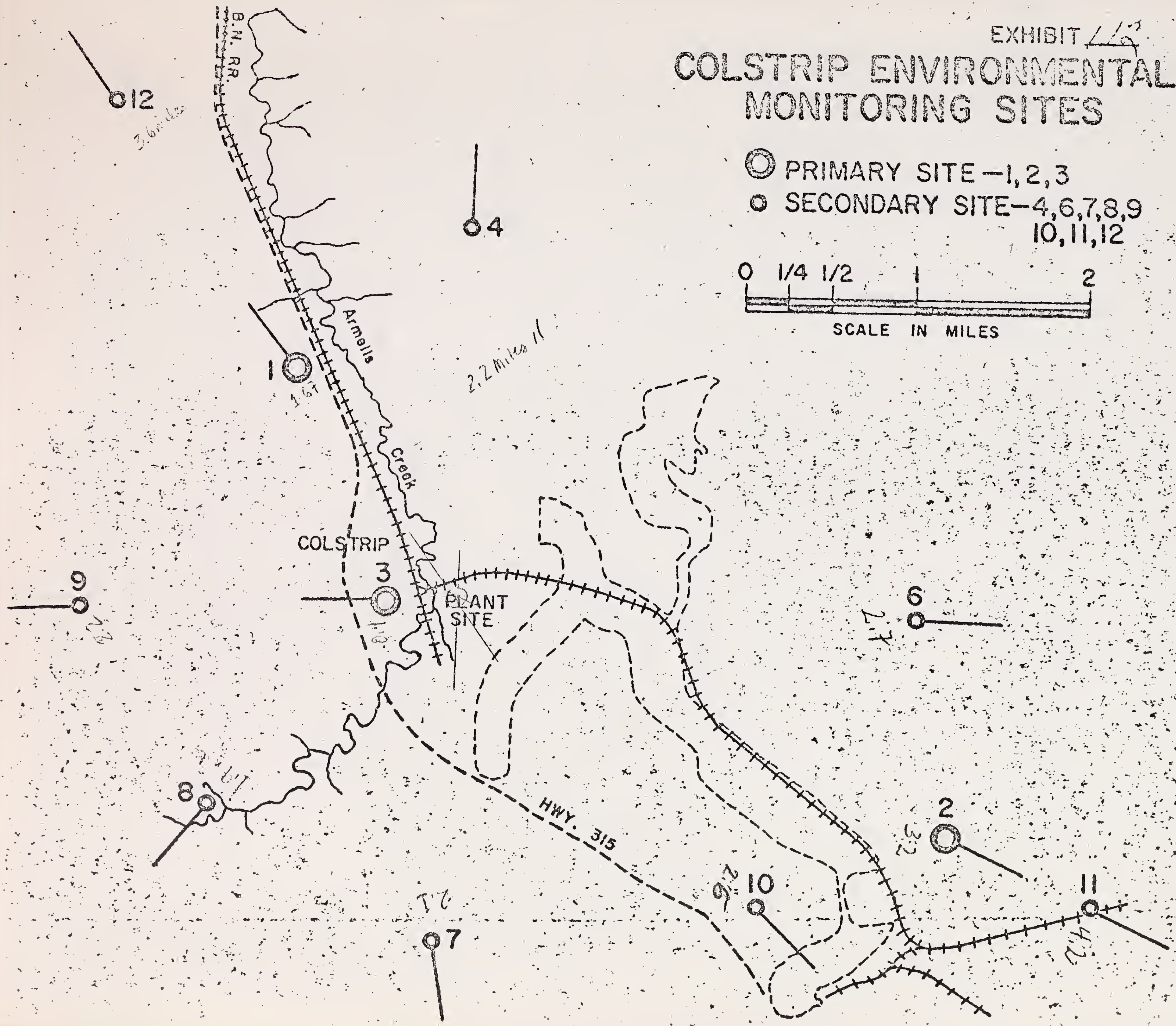
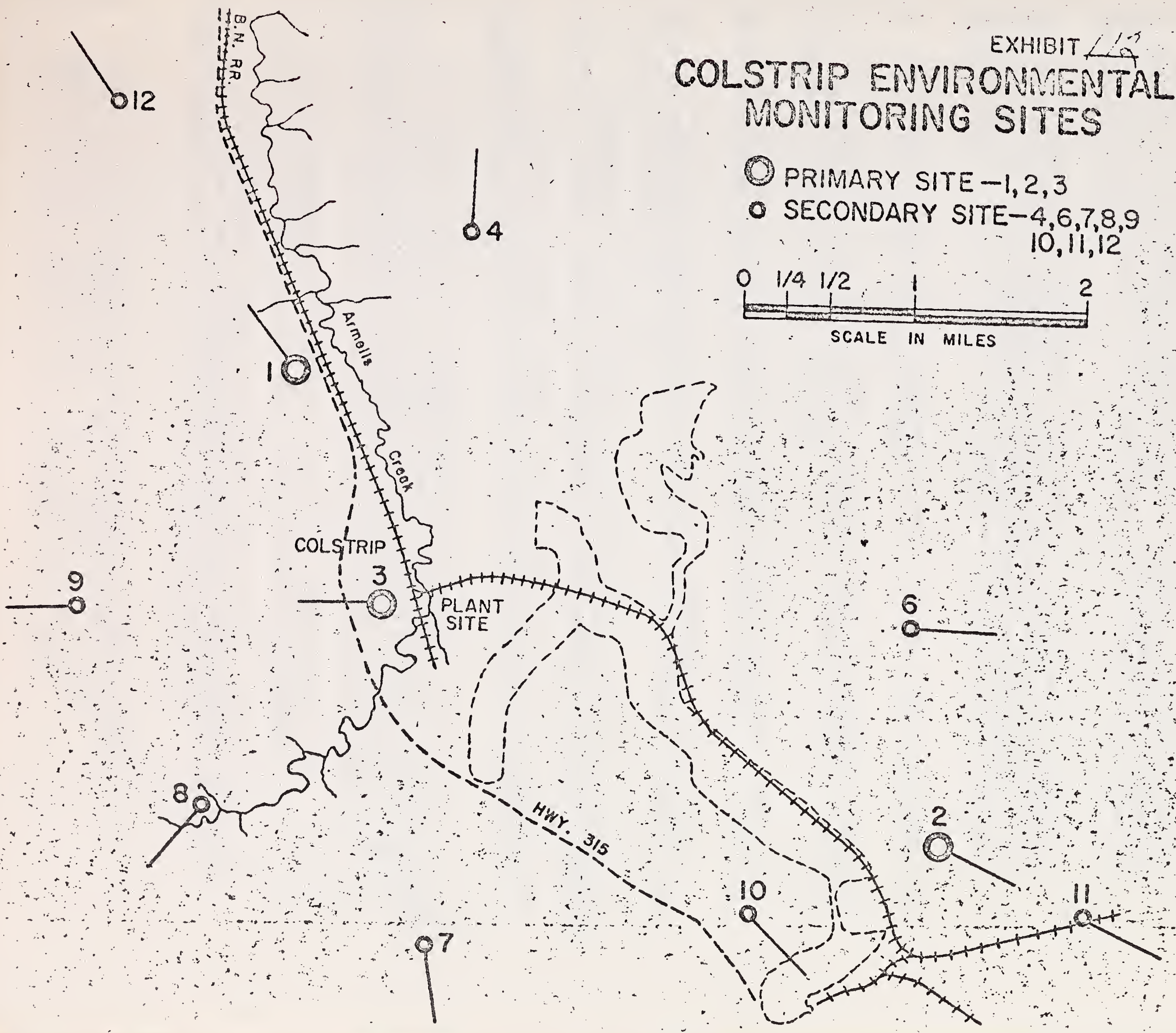


EXHIBIT 19

COLSTRIP ENVIRONMENTAL MONITORING SITES



Air Quality Monitoring
Western Energy - Colstrip, 21 March 1977

In conjunction with the environmental impact statement developed by State Lands, the Air Quality Bureau (AQB) reviewed your present area A and proposed area B mining activities.

Western Energy complied generally with the ambient air monitoring needs of the AQB during the fall and winter of 1976-7. This document will present the need for the already initiated air monitoring as well as detail and formalize the sampling program.

Activities within Montana must comply with (1) state[a] and (2) Federal air quality standards[b], (3) prevent air quality deterioration[c] in "clean" areas of Montana, and (4) set up strategies for the attainment and maintenance[d] of air quality in areas where standards are exceeded or projections show violations prior to 1985.

I'll explain some of these regulations and try to put them into perspective as they relate to coal mining operations.

1. Regulation 16-2.14(1)-S14040, Ambient Air Quality Standards - Montana's total suspended particulate (hi-vol) and settled particulate (dustfall) standards relate most closely to mining activities.

Regulation 16-2.14(1)-S1440, Particulate Matter, Airborne - Montana's fugitive emission regulation applies in general to the operation.

Regulation 16-2.14(1)-S1460, Visible Air Contaminants, Restrictions - Apply to exhaust air discharge points and generally would relate to exhausts from conveyor and crushing facilities.

Regulation 16-2.14(1)-S1430, Particulate Matter, Industrial - Details the allowed particulates that can be discharged for given weights of processed material.

Regulation 16-2.14(1)-S14050, Testing Required, Facilities - States that the Department can require the company to provide and locate test equipment at designated sampling points.

2. National primary and secondary Ambient Air Quality Standards were set forth in 1971. Primary standards were established to protect the public with some safety margin whereas the secondary standards were established to protect public welfare from known or anticipated adverse effects due to ambient air pollutants. AQB is charged with enforcement of these standards through our State Implementation Plan.

3. The prevention of significant air quality deterioration (PSD), a Federal regulation, was established to protect "clean" areas of the country.

All states are presently designated Class II with regard to PSD. This designation allows for a 10 microgram per cubic meter of air (ug/m^3) increase in total suspended particulates (TSP) over a 1974 background level.

---

a. Clean Air Act of Montana, Sec. 69-3909, subsec. 12, May 7, 1967.
b. Federal Register, Volume 36, No. 84, Friday, April 30, 1971.
c. Federal Register, Volume 34, No. 235, Thursday, Dec. 5, 1974.
d. Federal Register, Volume 41, No. 86, Monday, May 3, 1976.

AQ
1975
June 2

4. Colstrip lies within the Southeastern Montana Coal Air Quality Maintenance Area (AQMA). AQMA's were designated by the AQB for geographic areas within Montana where federal air quality standards are exceeded or projections show violations prior to 1985.

Primary air quality standards have to be met immediately and secondary standards within a reasonable amount of time. The AQB is setting up strategies which will bring and maintain compliance to air quality standards.

It is necessary for the Air Quality Bureau to follow your mine activities via air monitoring information. Such information will assist the AQB in its commitment to maintain the above air quality standards and to evaluate your mine operation's future development and expansion.

To insure high quality data in your sampling efforts, you should follow closely Federal Reference or State procedures. We will be happy to assist and train your personnel with equipment operation and calibration.

The AQB requires Western Energy to:

A. Operate the six high-volume (hi-vol) air samplers at sites designated 1-6 on the attached xeroxed USGS map.

Enclosed is a copy of the EPA reference method for proper operation and calibration of hi-vol air samplers. Close attention should be given to pages 7-46 in the "Guidelines for Development of a Quality Assurance Program, Reference Method for the Determination of Suspended Particulates in the Atmosphere", EPA-R4-73-0286, June 1973.

The Air Quality Bureau has an audit orifice device which when attached above a fiberglass filter on an operating hi-vol sampler, gives a single calibration point. We will compare this point to your last calibration curve. If your calibration curve agrees to within ± 6% of our check, we will consider your collected data to be valid. If, however, there is disparity we will review your procedure with you including the pressure-volume corrections to help determine the cause of the error. Judgments on the data since the previous calibration will, however, be made as to its validity. Such audit checks on your equipment and perhaps laboratory equipment and methods will be done on roughly a quarterly to semi-annual basis. They will be followed by a written report to you stating our findings.

Hi-vol samples should be run every 6th day from midnight to midnight, or more often as you may see fit. A schedule for such samplers is attached. We realize some samples may be missed or invalidated, but effort should be made to gain greater than 75% data collection from all quarters of the year.

Hi-vol data should be recorded on the attached data recording summary and supplied to the AQB monthly, about one month lag time may be necessary on your submittal of the monthly report.

Consideration for local activities at sites will be important aspects in our review of the data, thus necessitating good documentation by your company during times of sample runs. Documentation refers to the attached data recording summary and is described below.

B. Dustfall

Eight dustfall measuring devices have been established at the six hi-vol sites plus the two sites indicated on the attached map. ASTM method D 1739-70 should be used for the dustfall sampling and analysis procedures.

The dustfall jars should be changed on a calendar month basis. This data should be reported to the AQB on the attached format.

C. Supply climatological data.

Because Montana Power Company operates a meteorological system in Colstrip, it should be rather simple for you to obtain the 102 ft. level wind speed and direction information. The National Weather Service station in Colstrip can supply the precipitation and temperature information required on the data sheet. This climatological information should be provided to afford correlation of precipitation with mine-emitted and wind-blown dust.

D. In order to obtain the greatest information from this sampling network and to assist the company and state in the evaluation of particulates at various points through the mining operation, the company should estimate and supply some operational parameters during the times of hi-vol operation.

Color intensities will help us roughly differentiate between coal, haul road, and wind-blown surface dust. Paint chips supplied by the AQB should be placed next to your analytical balance, be compared to the color intensity of the spent sample filter and the corresponding paint chip number recorded on the data recording summary.

Estimated tons of transported material, numbers of vehicle trips and numbers of vehicles in operation near the hi-vol during its 24-hour one-in-six day operation will rationalize the magnitude of particulate readings. It will not be necessary for actual counts to be made over the 24-hour sampling period. However, a person knowledgeable with the operation, including shift changes, etc., should be able to supply this data without great effort. The counts should be somewhat consistent day to day.

Water applied to haul roads should have an inverse relationship to vehicular generated particulate matter. Number of blasts conversely would be expected to increase readings if they affect the TSP mass loadings.

Re-evaluation of this monitoring program can be made two years following the start of coal removal from the area B mine area. According to State Lands, this mining commenced about Oct. 1, 1976. This re-evaluation would possibly be a relocation or reduction in the sampling program.

State of Montana, Coal Mine Data Reporting Summary, Air Quality Bureau - Helena

Location ______________________ Month __________ Company Name ______________________

ation Number	Date	ug/m^3 a.	$1^{b.}$	$2^{c.}$	$3^{d.}$	$4^{e.}$	$5^{f.}$	$6^{g.}$	$7^{h.}$	$8^{i.}$	$9^{j.}$	$10^{k.}$	$11^{l.}$	$12^{m.}$

No. Invalid Samples __________ for the month. Company Signature ______________________

a. Corrected to 760 MM Hg, 25° C.
b. Color intensity of hi-vol filter (use color code as supplied by AQB).
c. Estimated no. tons coal or overburden transported past the station (within approx. ½ mile), includes coal haulers, scrapers, trains during hi-vol operation.
d. Approx. no. daily vehicle trips past the sampler (within approx. ½ mile) to the grizzly at the crushing facility or the stock pile or the waste or reclamation area.
e. Estimated no. vehicles in operation (within approx. ½ mile) of the hi-vol during its operation. Include road graders, end loaders, cats, drills, scrapers, draglines, shovels.
f. Estimated no. tons of water dumped on the haul roads within approximately 1 mile of the hi-vol during its operation.
g. No. blasts made within approx. ½ mile of the hi-vol during its operation.
h. Daily inches precipitation as recorded at a local climatological station, ± 0.01 inches.
i. Mean wind speed in miles per hour, calendar day.
j. Mean wind direction (use 16 compass points), calendar day.
k. Mean ambient temperature, calendar day, in degrees centigrade.
l. Dustfall in tons per square mile.
. Organic content of dustfall, ASTM D 1739-70, 7.3 Combustible and Volatile Particulates including benzene solubles.

MPC Hi-Vol Sites 1,2,&3

1975

JANUARY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

FEBRUARY

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

MARCH

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

APRIL

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

MAY

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

JUNE

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

JULY

S	M	T	W	T	F	S
		1	2	●	4	5
6	7	8	●	10	11	12
13	14	●	16	17	18	19
20	●	22	23	24	25	26
●	28	29	30	31		

AUGUST

S	M	T	W	T	F	S
					1●	2
3	4	5	6	7	●	9
10	11	12	13	14	●	16
17	18	19	●	21	22	23
24	25	●	27	28	29	30
31						

SEPTEMBER

S	M	T	W	T	F	S
	●	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

Missing data

OCTOBER

S	M	T	W	T	F	S
			1	2	3	4
5	6	●	8	9	10	11
12	●	14	15	16	17	18
●	20	21	22	23	24	●
26	27	28	29	30	●	

NOVEMBER

S	M	T	W	T	F	S
						1
2	3	4	5	●	7	8
9	10	11	●	13	14	15
16	17	●	19	20	21	22
23	●	25	26	27	28	29
●						

DECEMBER

S	M	T	W	T	F	S
	1	2	3	4	5	●
7	8	9	10	11	●	13
14	15	16	17	●	19	20
21	22	23	●	25	26	27
28	29	●	31			

1975

JANUARY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

FEBRUARY

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

MARCH

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

APRIL

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

MAY

S	M	T	W	T	F	S
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4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

JUNE

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

JULY

S	M	T	W	T	F	S
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6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

AUGUST

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

SEPTEMBER

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

OCTOBER

S	M	T	W	T	F	S
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5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

NOVEMBER

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
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DECEMBER

S	M	T	W	T	F	S
	1	2	3	4	5	6
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14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

1975

JANUARY

S	M	T	W	T	F	S
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5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

FEBRUARY

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

MARCH

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

APRIL

S	M	T	W	T	F	S
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13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

MAY

S	M	T	W	T	F	S
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11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

JUNE

S	M	T	W	T	F	S
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8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

JULY

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6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

AUGUST

S	M	T	W	T	F	S
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10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

SEPTEMBER

S	M	T	W	T	F	S
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7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

OCTOBER

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NOVEMBER

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DECEMBER

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21	22	23	24	25	26	27
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1975

JANUARY

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12	13	14	15	16	17	18
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26	27	28	29	30	31	

FEBRUARY

S	M	T	W	T	F	S
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2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

MARCH

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9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

APRIL

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MAY

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JUNE

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8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
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JULY

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6	7	8	9	10	11	12
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AUGUST

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SEPTEMBER

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OCTOBER

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NOVEMBER

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DECEMBER

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1975

JANUARY

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5	6	7	8	9	10	11
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FEBRUARY

S	M	T	W	T	F	S
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2	3	4	5	6	7	8
9	10	11	12	13	14	15
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MARCH

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

APRIL

S	M	T	W	T	F	S
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6	7	8	9	10	11	12
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20	21	22	23	24	25	26
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MAY

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4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

JUNE

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

JULY

S	M	T	W	T	F	S
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6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
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AUGUST

S	M	T	W	T	F	S
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3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
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SEPTEMBER

S	M	T	W	T	F	S
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7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
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OCTOBER

S	M	T	W	T	F	S
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5	6	7	8	9	10	11
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NOVEMBER

S	M	T	W	T	F	S
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16	17	18	19	20	21	22
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DECEMBER

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1975

JANUARY

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5	6	7	8	9	10	11
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FEBRUARY

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2	3	4	5	6	7	8
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MARCH

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23	24	25	26	27	28	29
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APRIL

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MAY

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4	5	6	7	8	9	10
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18	19	20	21	22	23	24
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JUNE

S	M	T	W	T	F	S
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8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
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JULY

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AUGUST

S	M	T	W	T	F	S
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SEPTEMBER

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OCTOBER

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NOVEMBER

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DECEMBER

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JANUARY

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FEBRUARY

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MARCH

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APRIL

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MAY

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18	19	20	21	22	23	24
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JUNE

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JULY

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AUGUST

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SEPTEMBER

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OCTOBER

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NOVEMBER

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DECEMBER

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1975

JANUARY

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FEBRUARY

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MARCH

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APRIL

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MAY

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JUNE

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JULY

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AUGUST

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SEPTEMBER

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OCTOBER

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NOVEMBER

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DECEMBER

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MPC Hi-Vol Sites 1, 2 & 3

1976

Holidays, Holy Days and Commemorative Days

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31 Halloween
Nov. 2 Election Day
25 Thanksgiving Day
28 First Sunday of Advent
Dec. 25 Christmas Day

JANUARY

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FEBRUARY

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MARCH

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APRIL

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AUGUST

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OCTOBER

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NOVEMBER

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JANUARY

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FEBRUARY

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APRIL

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AUGUST

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FEBRUARY

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FEBRUARY

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MARCH

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JUNE

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JULY

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AUGUST

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SEPTEMBER

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OCTOBER

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NOVEMBER

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DECEMBER

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FEBRUARY

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MARCH

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JANUARY, FEBRUARY, MARCH, APRIL, MAY, JUNE, JULY, AUGUST, SEPTEMBER, OCTOBER, NOVEMBER, DECEMBER (same calendar as above)

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Mpc Hi Vol Sites 1-3

1977

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SEPTEMBER

S	M	T	W	T	F	S
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4	5	6	7	8	9	10
11	12	13	14	15	16	17
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OCTOBER

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9	10	11	12	13	14	15
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NOVEMBER

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DECEMBER

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11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Holidays, Holy Days and Commemorative Days

Jan. 1 New Year's Day

Feb. 12 Lincoln's Birthday
14 St. Valentine's Day
21 Washington's Birthday
23 Ash Wednesday

Mar. 17 St. Patrick's Day

Apr. 3 Jewish Passover
3 Palm Sunday
8 Good Friday
10 Easter Sunday

May 8 Mother's Day
21 Armed Forces Day
30 Memorial Day

Jun. 5 Trinity Sunday
12 Children's Day
14 Flag Day
19 Father's Day

Jul. 4 Independence Day

Sep. 5 Labor Day
13 Jewish New Year
17 Citizenship Day
22 Jewish Yom Kippur

Oct. 10 Columbus Day
24 Veterans Day
24 United Nations Day
31 Halloween

Nov. 8 Election Day
24 Thanksgiving Day
27 First Sunday of Advent

Dec. 25 Christmas Day*

1977

JANUARY – JUNE, JULY – DECEMBER 1977 (same calendar as above)

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Dec. 25 Christmas Day*

1977

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Nov. 8 Election Day
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Dec. 25 Christmas Day*

1977

JANUARY

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FEBRUARY

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MARCH

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MAY

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JULY

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AUGUST

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SEPTEMBER

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OCTOBER

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23	24	25	26	27	28	29
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	3	Palm Sunday
	8	Good Friday
	10	Easter Sunday
May	8	Mother's Day
	21	Armed Forces Day
	30	Memorial Day
Jun.	5	Trinity Sunday
	12	Children's Day
	14	Flag Day
	19	Father's Day
Jul.	4	Independence Day
Sep.	5	Labor Day
	13	Jewish New Year
	17	Citizenship Day
	22	Jewish Yom Kippur
Oct.	10	Columbus Day
	24	Veterans Day
	24	United Nations Day
	31	Halloween
Nov.	8	Election Day
	24	Thanksgiving Day
	27	First Sunday of Advent
Dec.	25	Christmas Day*

1977

JANUARY – JUNE, JULY – DECEMBER

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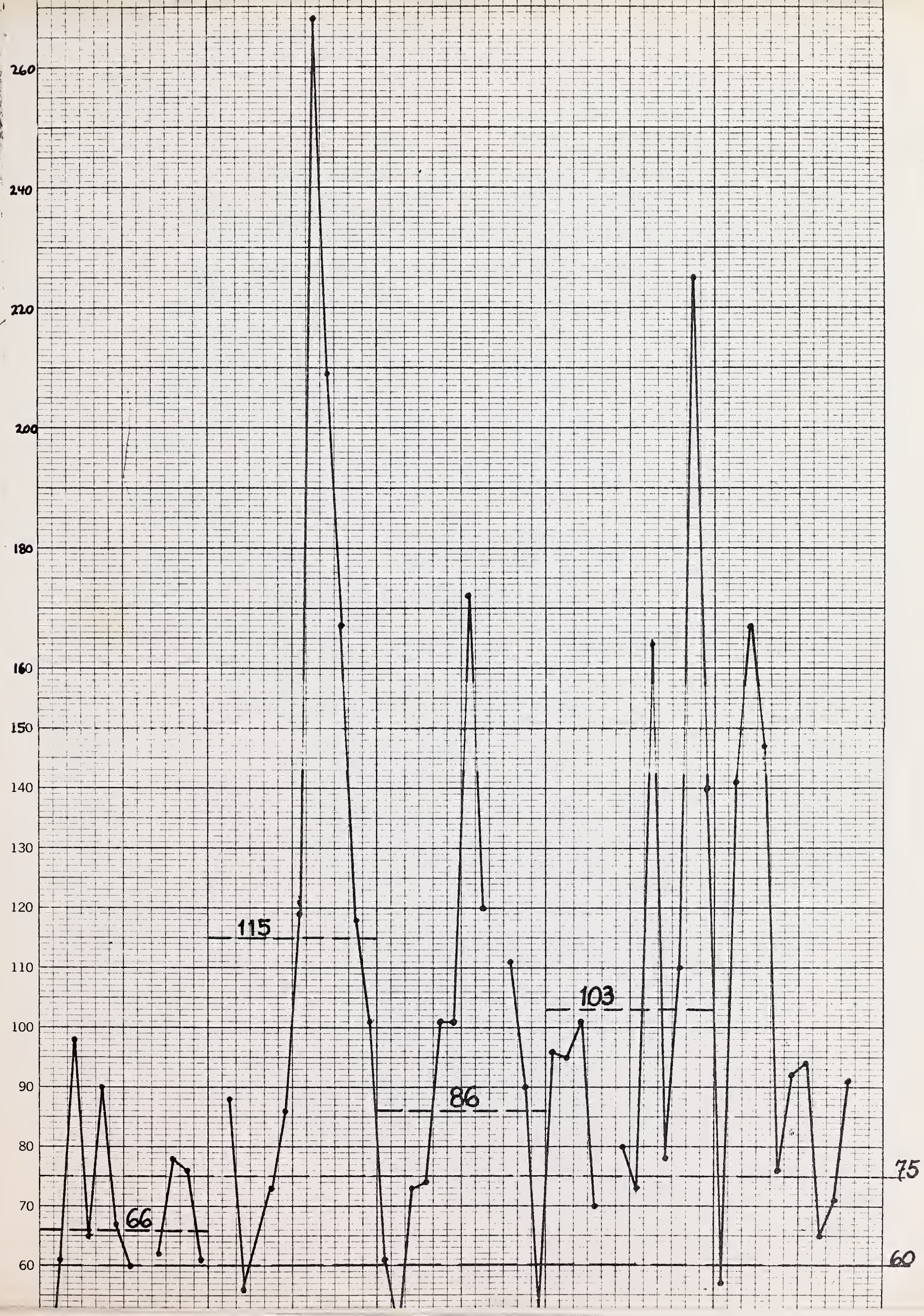
Dec. 25 Christmas Day*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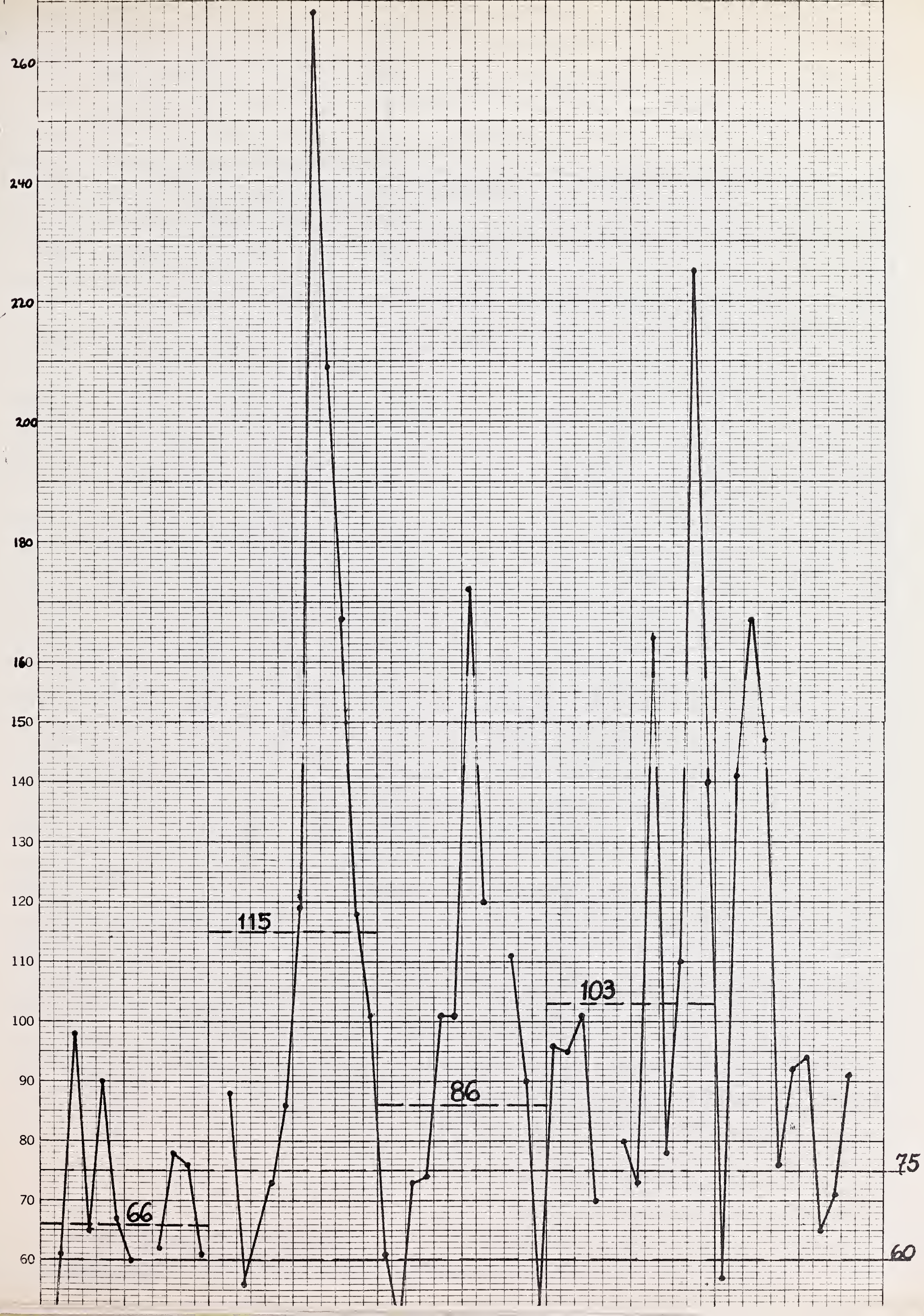
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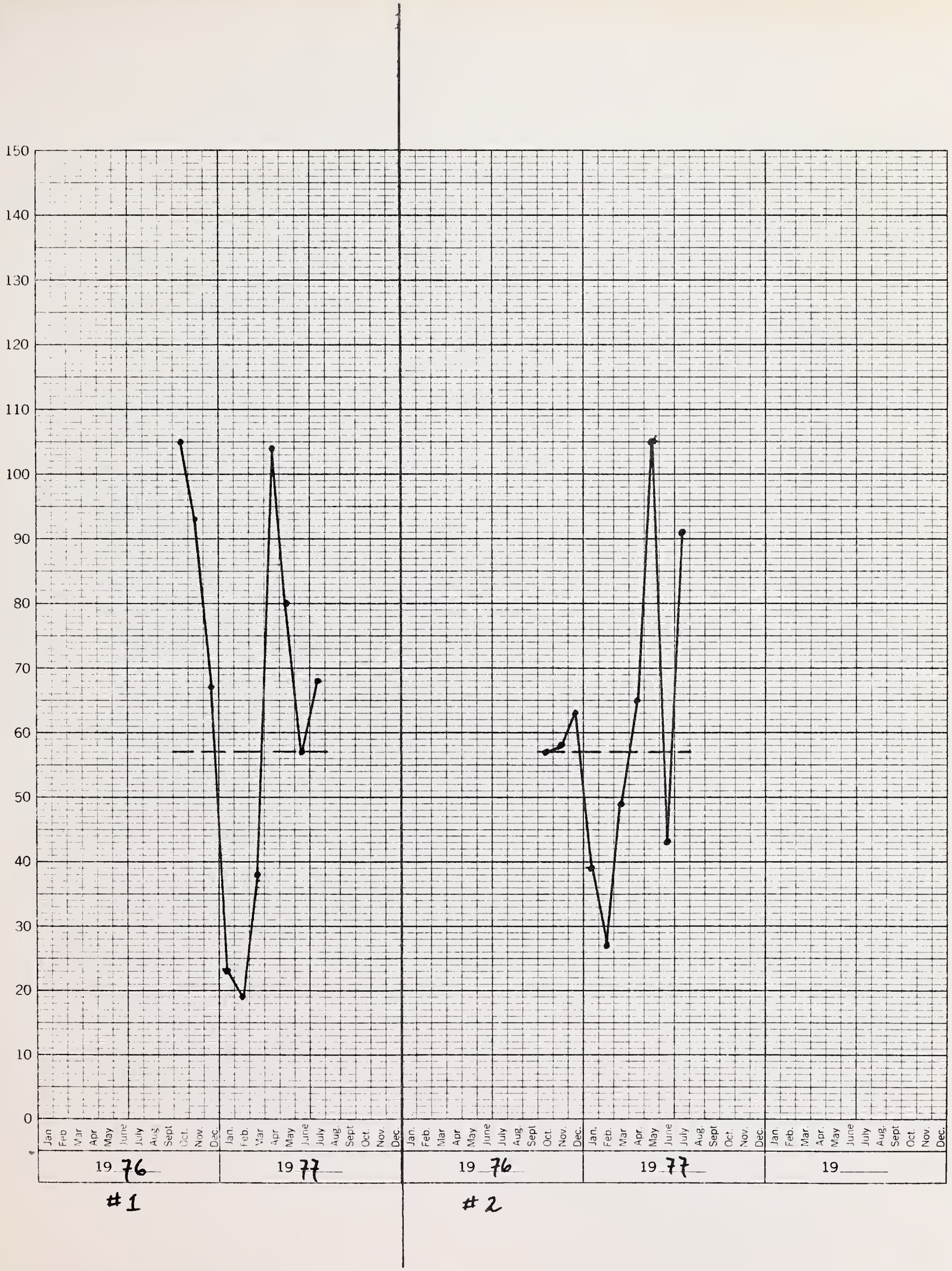
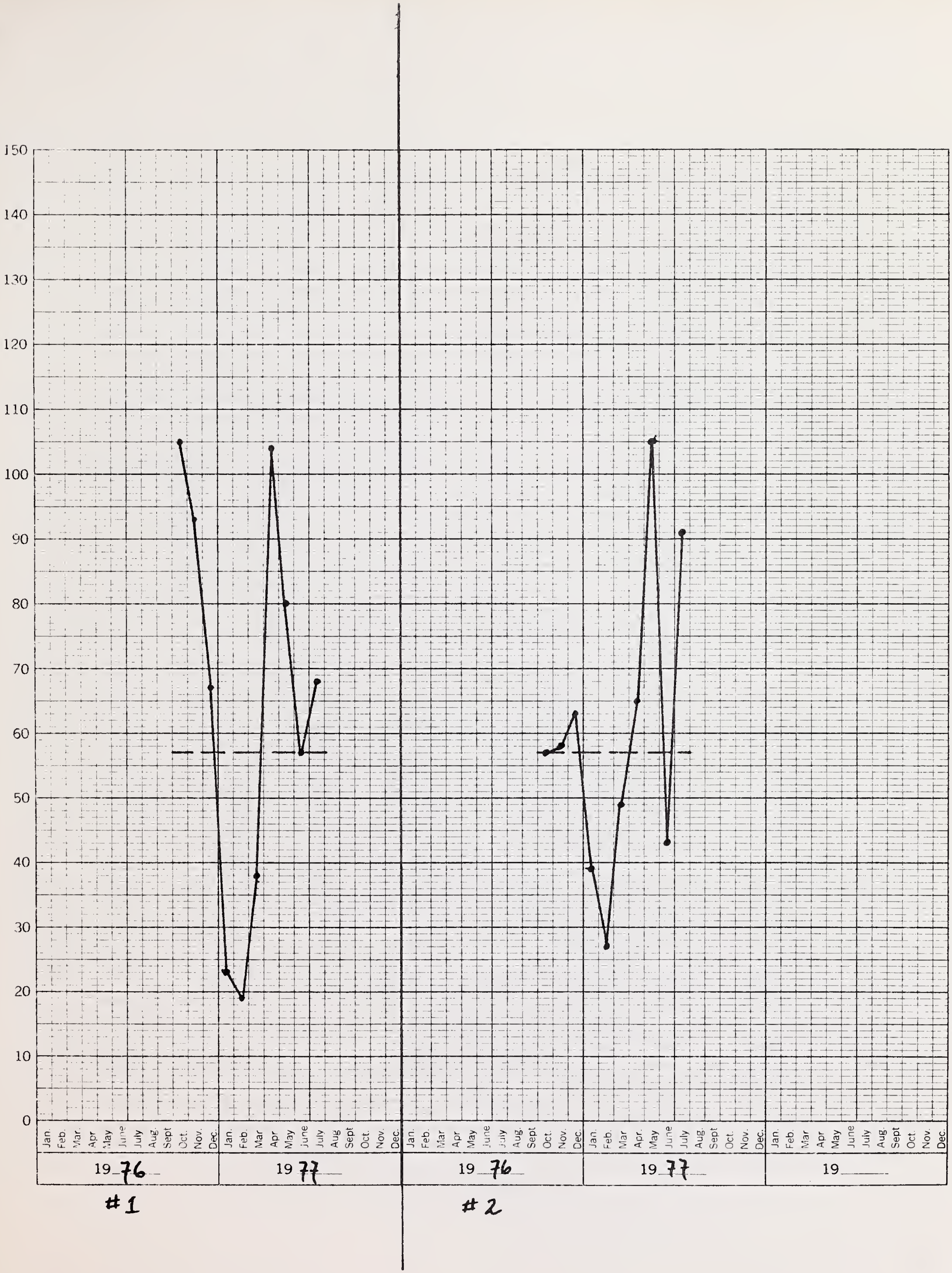
46 3410

K&E 5 YEARS BY MONTHS X 150 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.



Western Energy Co. - Colstrip
Hi-Vol stations (Monthly Geo. ave. in $\mu g/m^3$)
Area A & B.

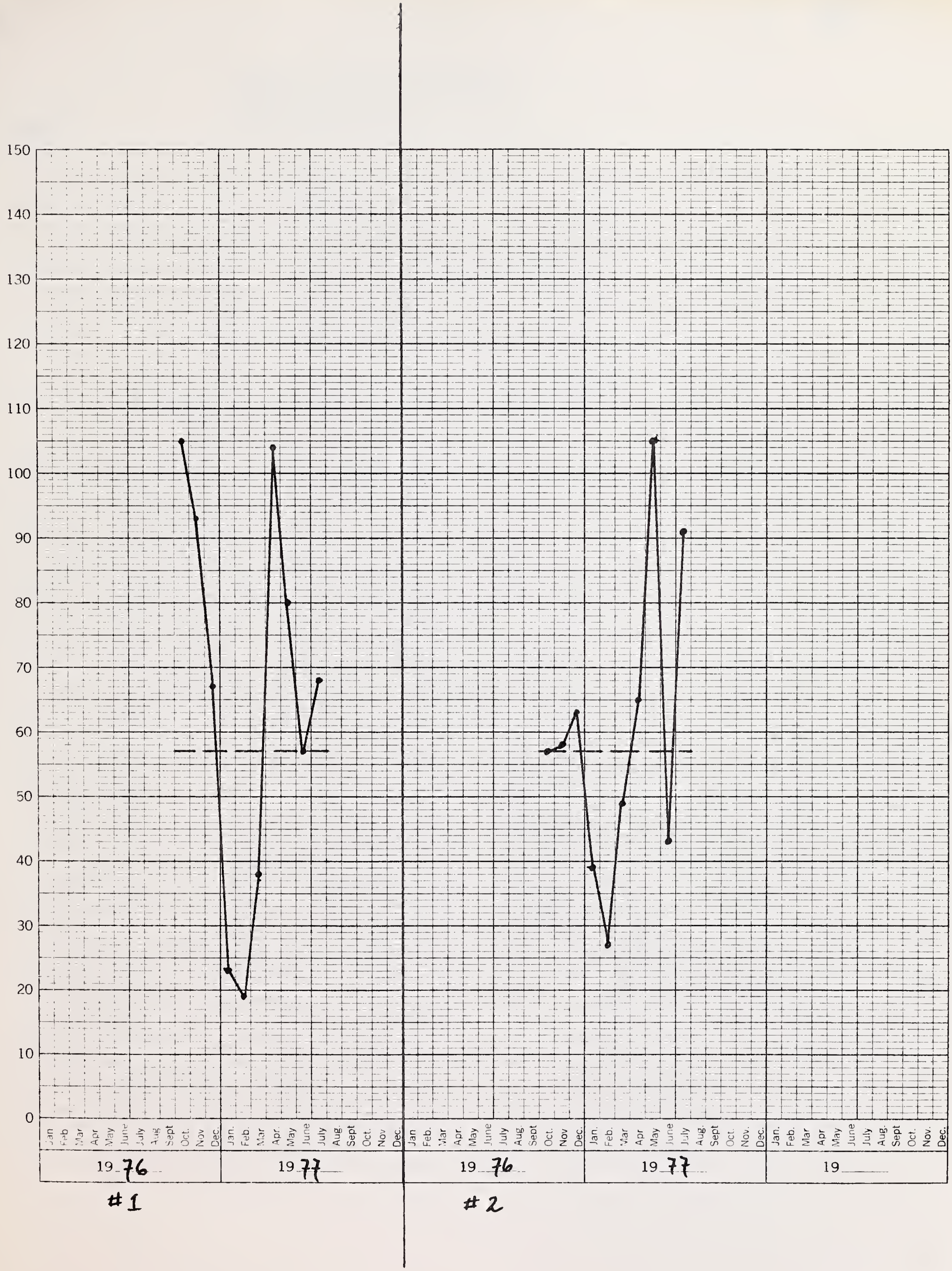
46 3410
K&E 5 YEARS BY MONTHS X 150 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.



Western Energy Co. - Colstrip
Hi-Vol stations (Monthly Geo. ave. in $\mu g/m^3$)
Area A & B.

46 3410

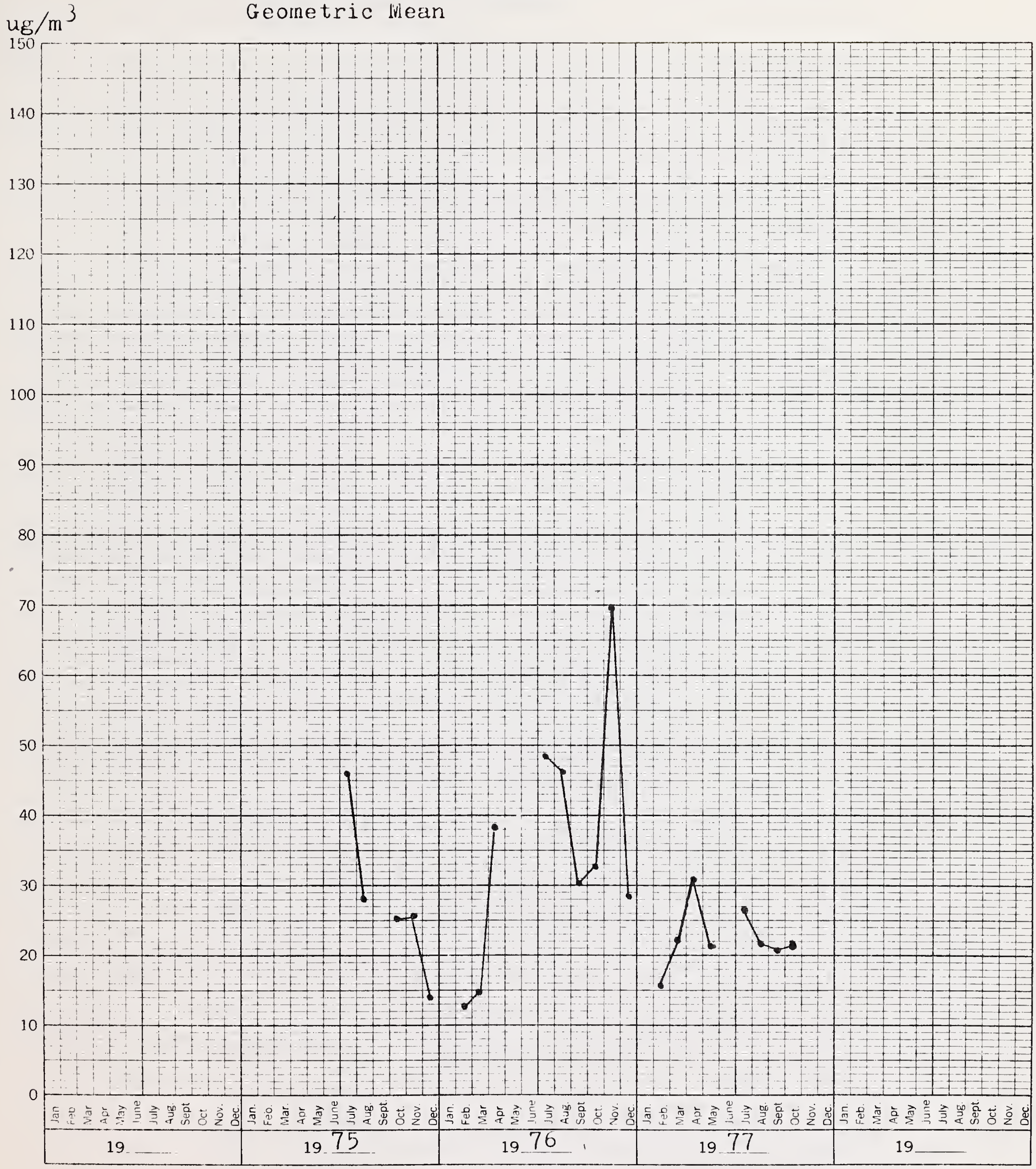
K+E 5 YEARS BY MONTHS X 10 DIVISIONS
KEUFFEL & ESSER CO.



Western Energy Co. - Colstrip
Hi-Vol stations (Monthly Geo. ave. in $\mu g/m^3$)
Area A & B.

1/9/78
AQB
HR

Montana Power Site #1
High Volume Air Sampler
Geometric Mean

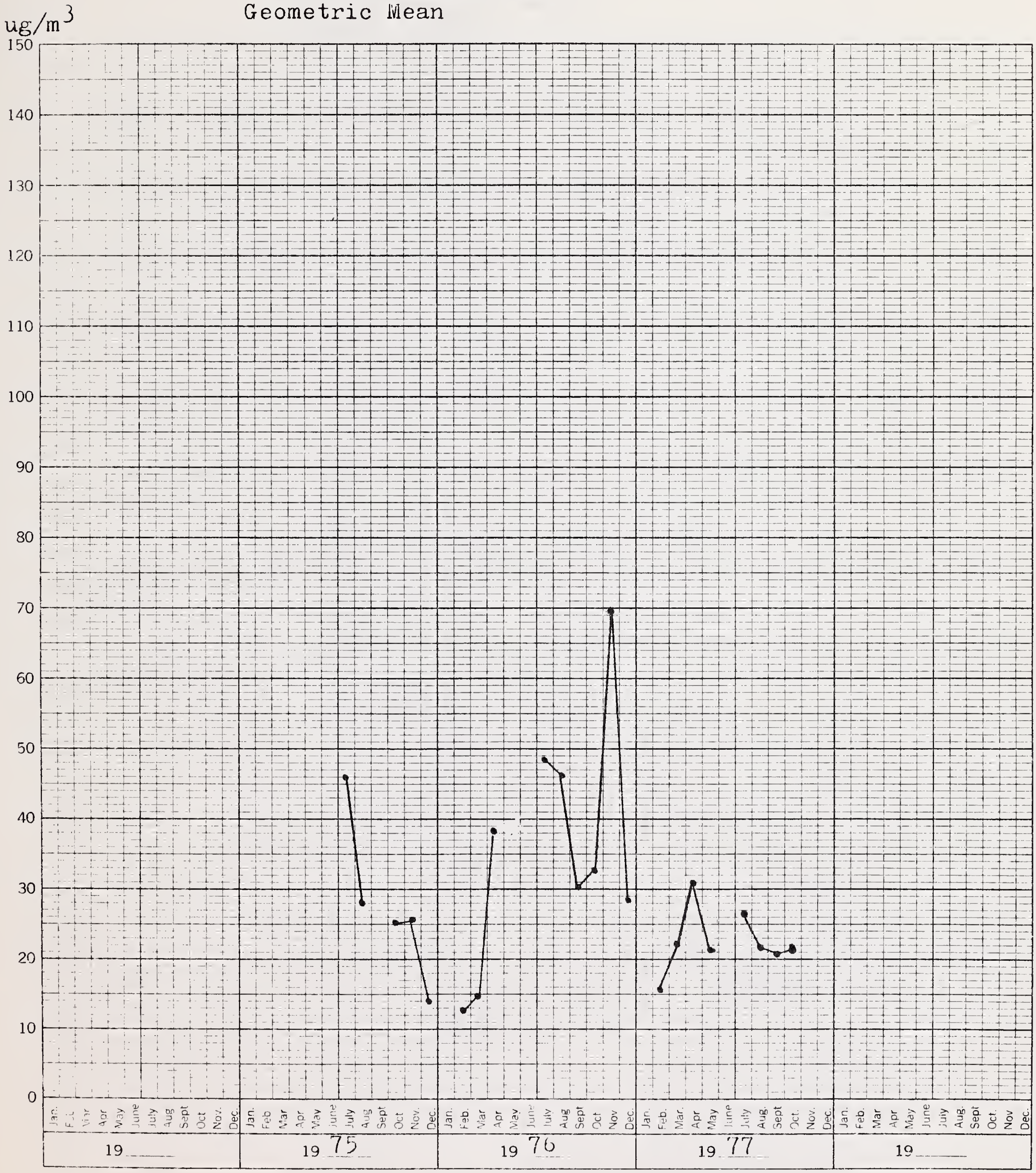


46 3410

K+E 5 YEARS BY MONTHS X 150 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

1/9/78
AQB
HR

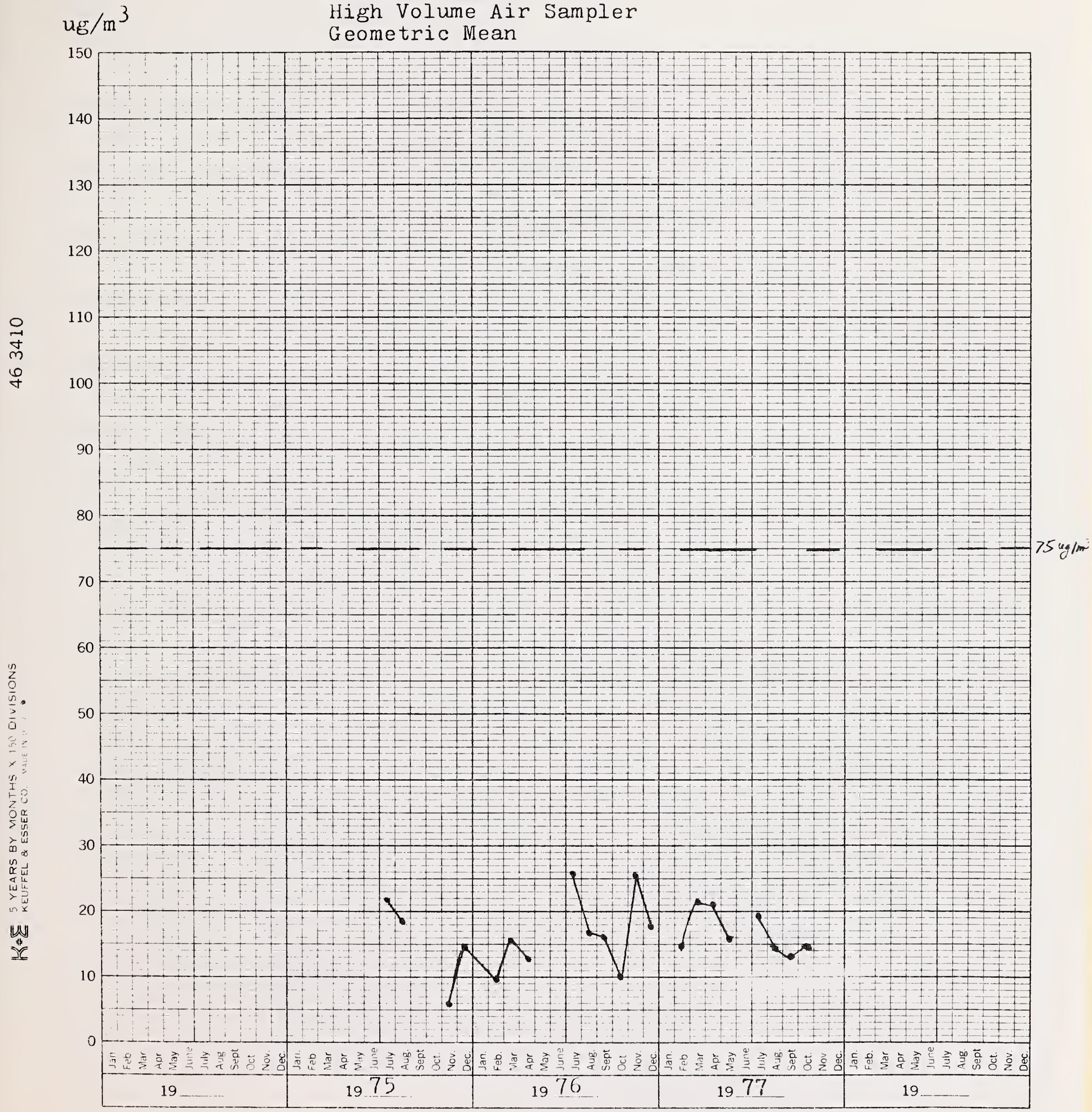
Montana Power Site #1
High Volume Air Sampler
Geometric Mean



46 3410
K+E 5 YEARS BY MONTHS X 150 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

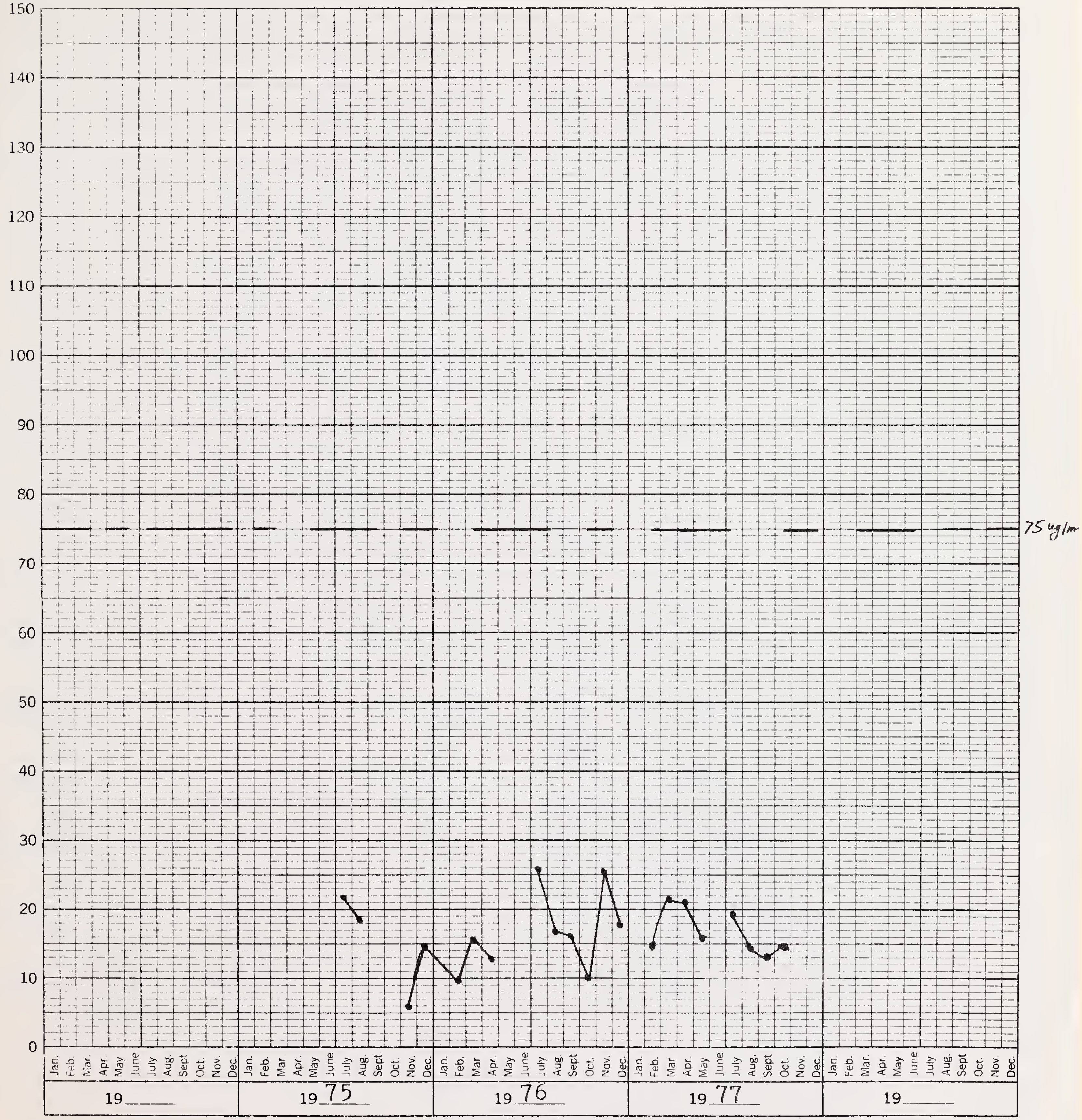
1/9/78
AQB
HR

Montana Power Site #2
High Volume Air Sampler
Geometric Mean



1/9/78
AQB
HR

Montana Power Site #2
High Volume Air Sampler
Geometric Mean

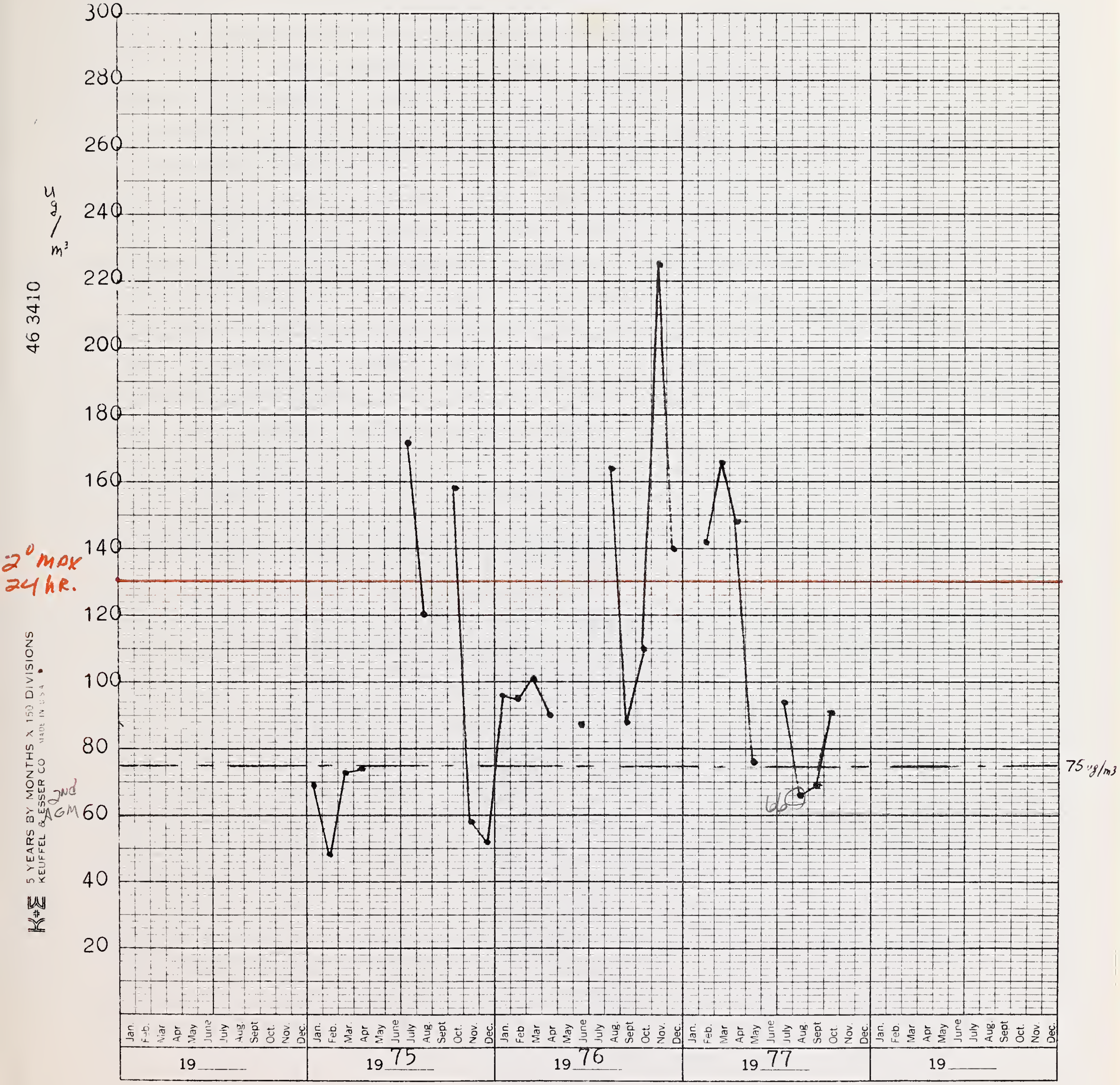


46 3410

K&E 5 YEARS BY MONTHS X 150 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

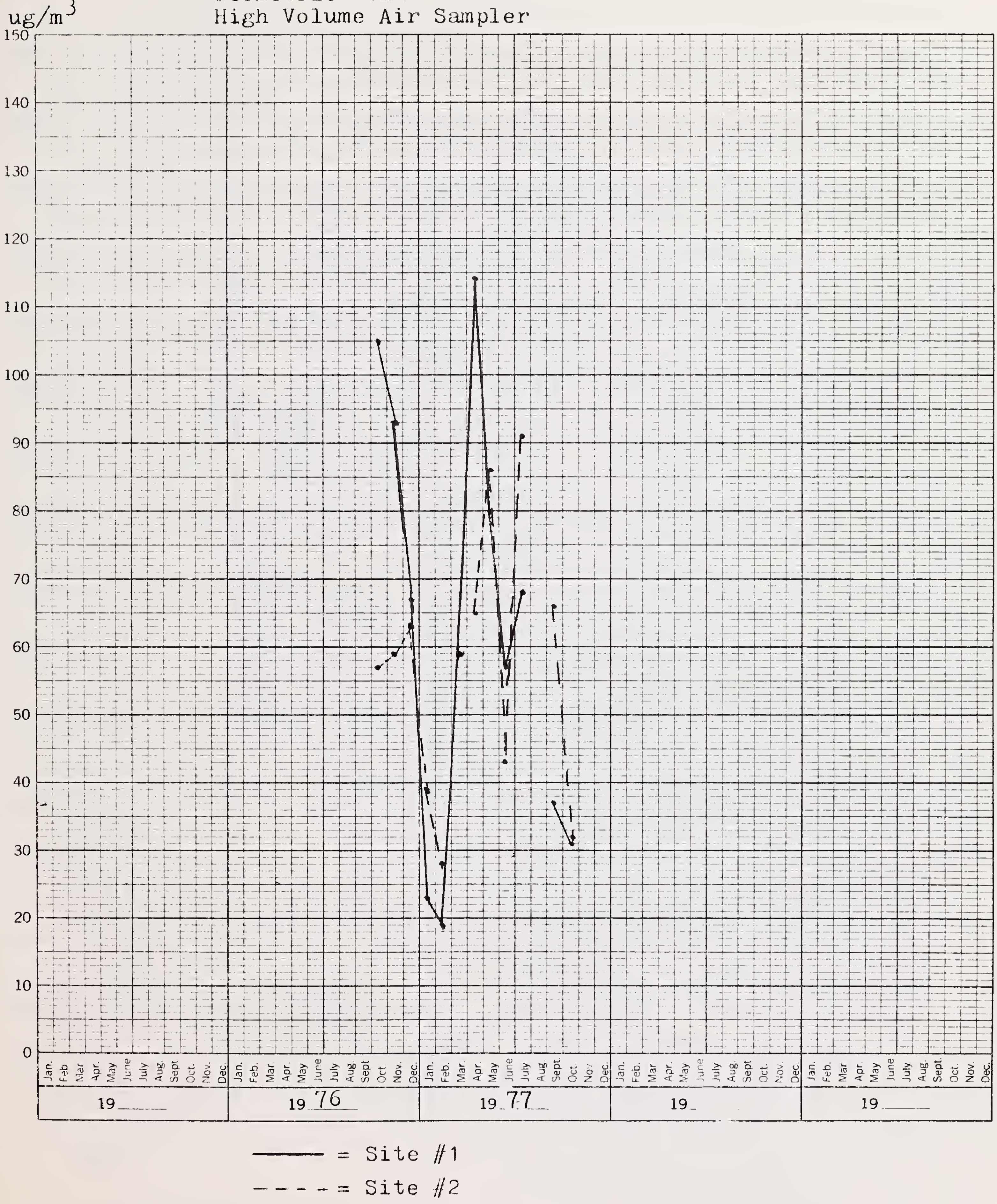
1/9/78
AQB
HR

Montana Power Site #3
High Volume Air Sampler
Geometric Mean



1/11/78
AQB
HR

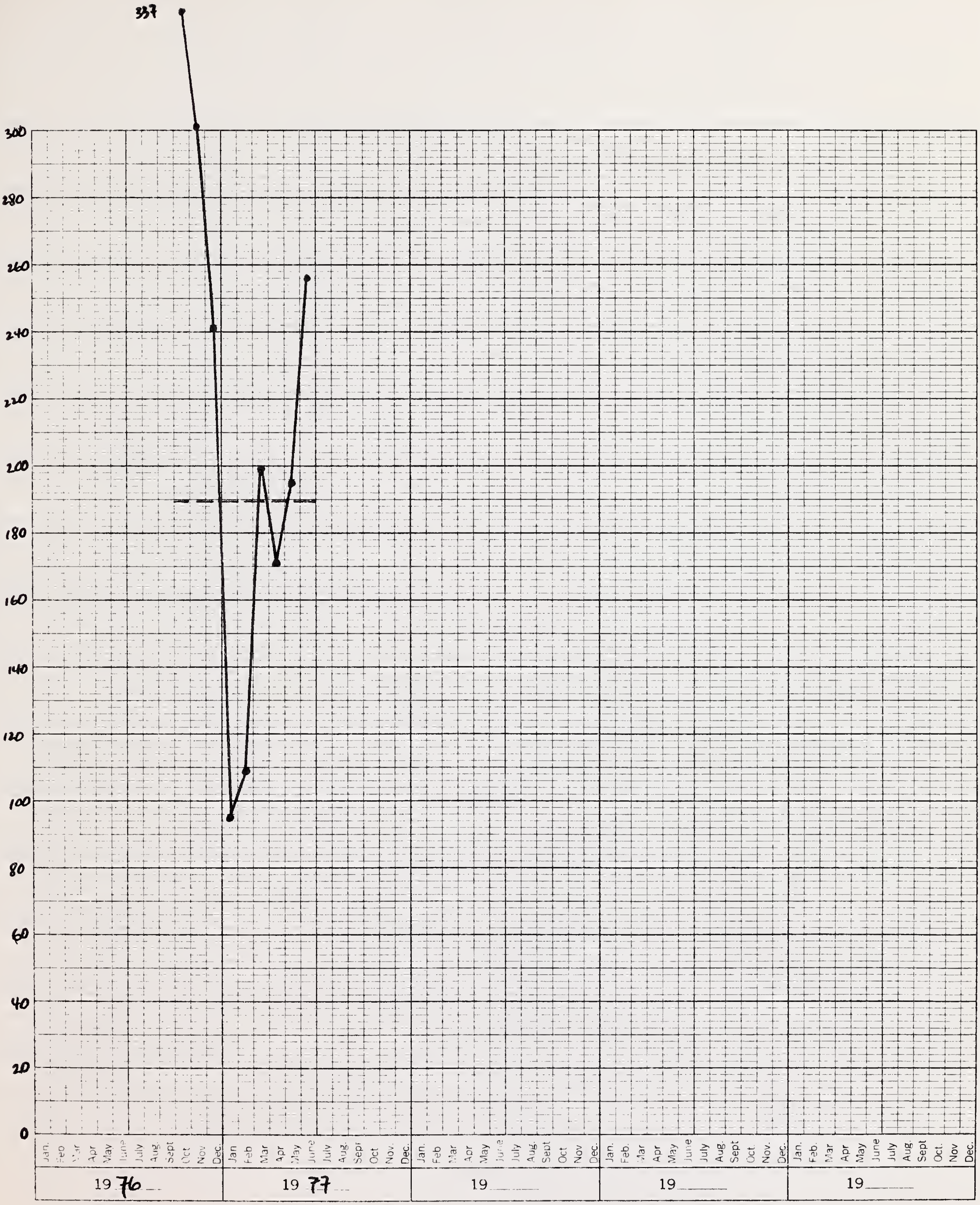
Western Energy Sites #1 and #2
Geometric Mean
High Volume Air Sampler



46 3410

K+E 5 YEARS BY MONTHS X 150 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

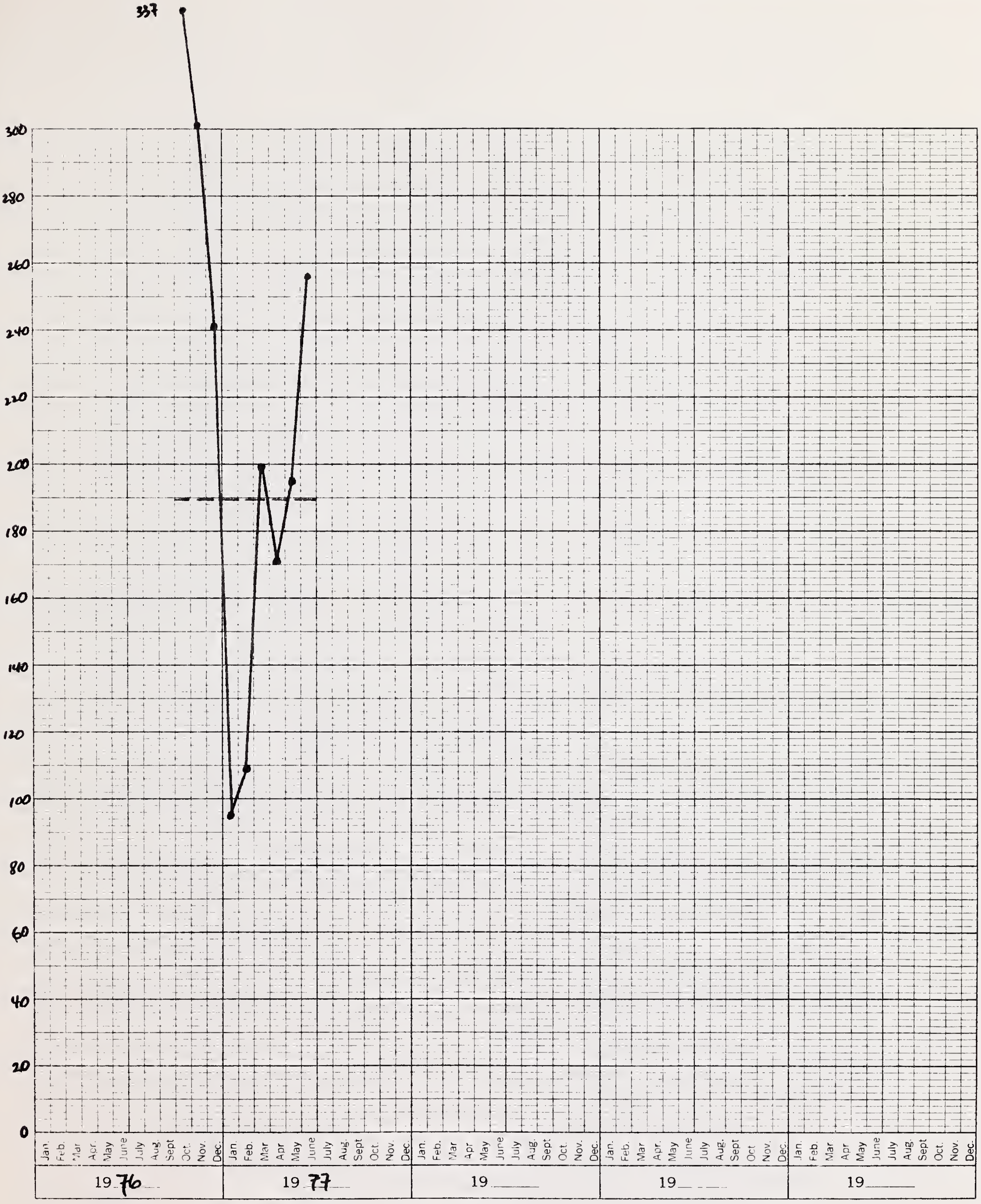
46 3410
K&E 5 YEARS BY MONTHS X 150 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.



3

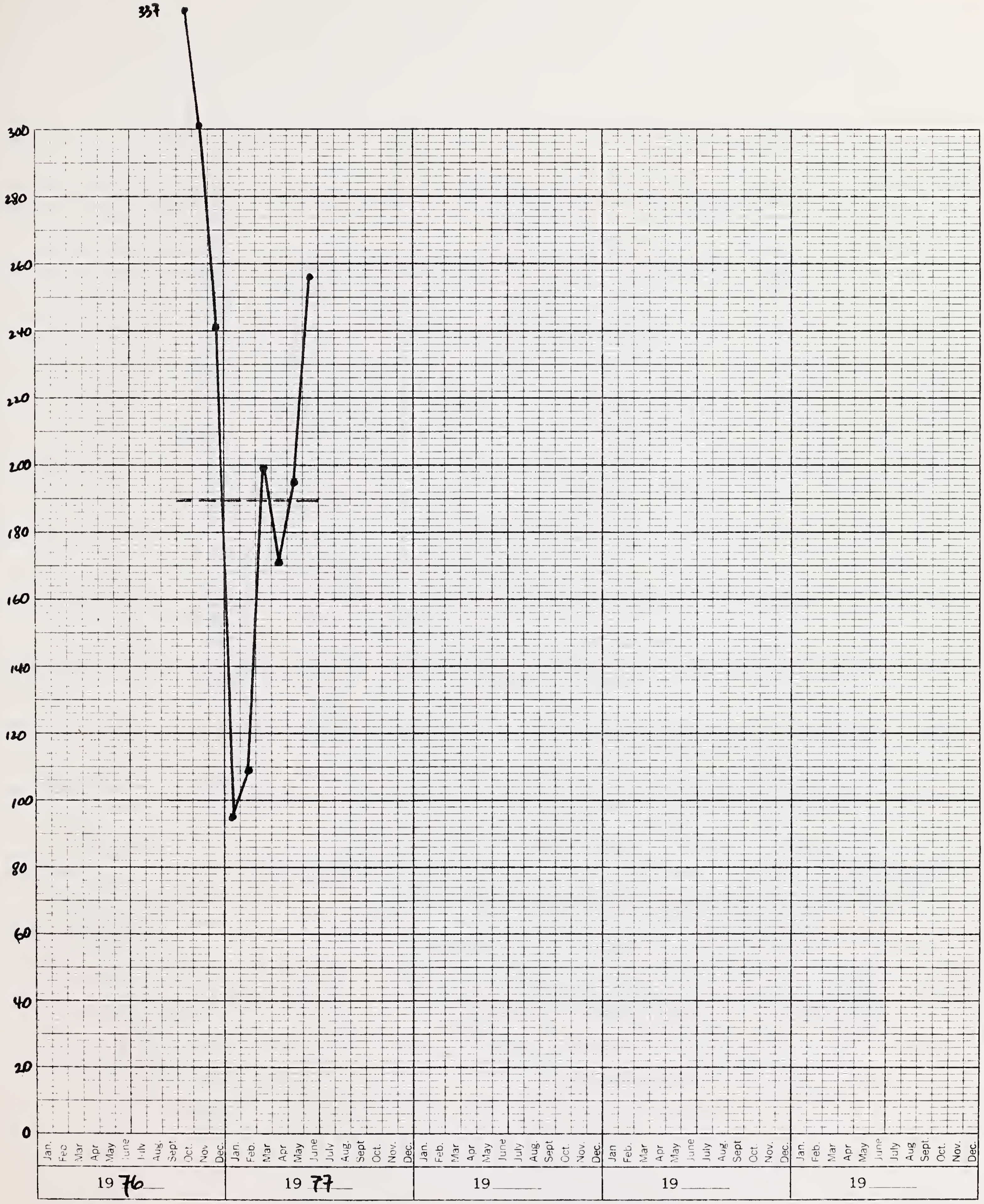
Western Energy Co. – Colstrip
Hi-Vol stations (Monthly Geo. ave. in ug/m^3)
Area A & B

46 3410
K&E 5 YEARS BY MONTHS X 150 DIVISIONS
KEUFFEL & ESSER CO.



3

Western Energy Co. - Colstrip
Hi-Vol stations (Monthly Geo. ave. in ug/m³)
Area A & B



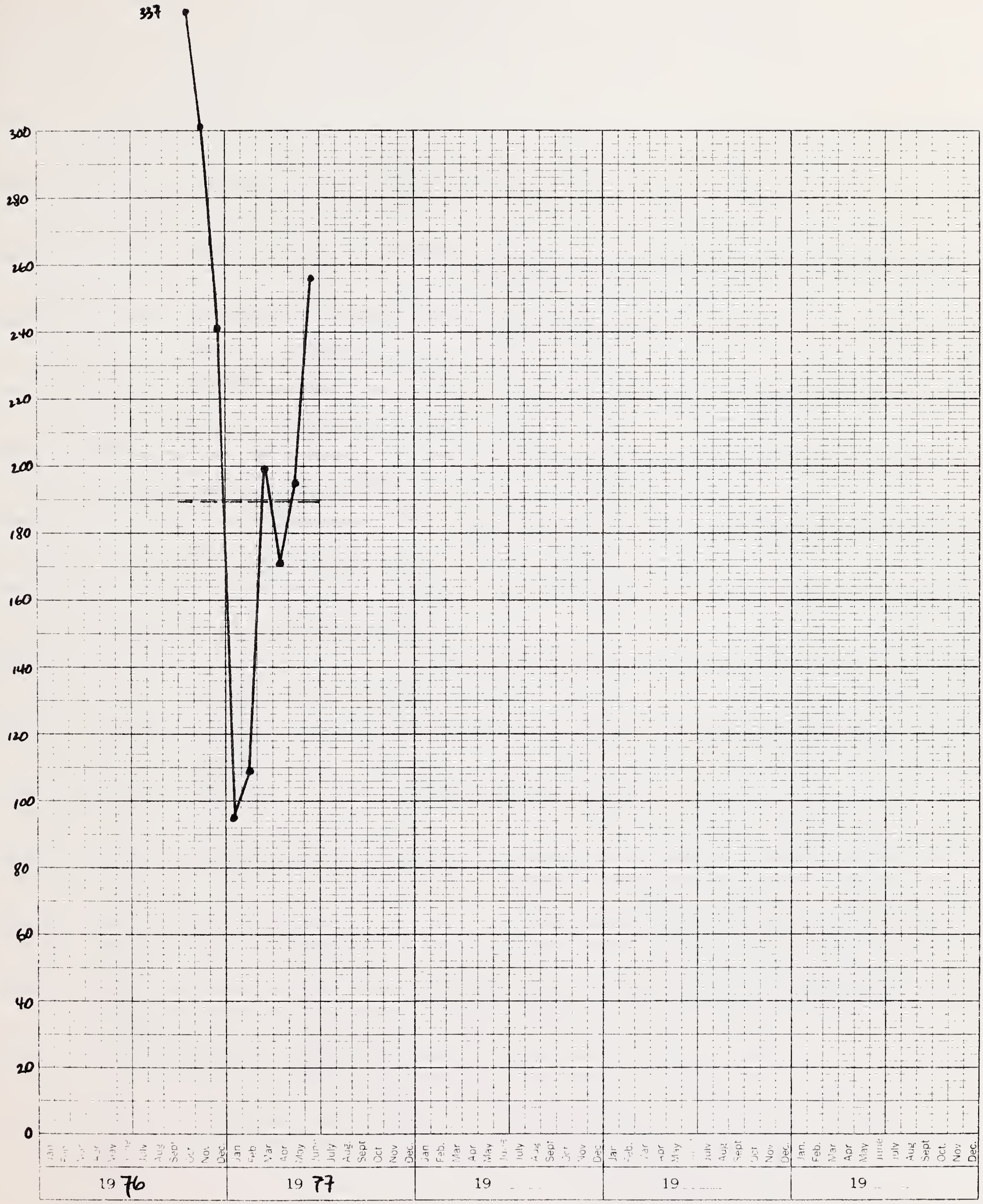
3

Western Energy Co. - Colstrip
Hi-Vol stations (Monthly Geo. ave. in ug/m³)
Area A & B

46 3410
K&E 5 YEARS BY MONTHS X 150 DIVISIONS
KEUFFEL & ESSER CO.

46 3410

K+E 5 YEARS BY MONTHS X ... KEUFFEL & ESSER CO.



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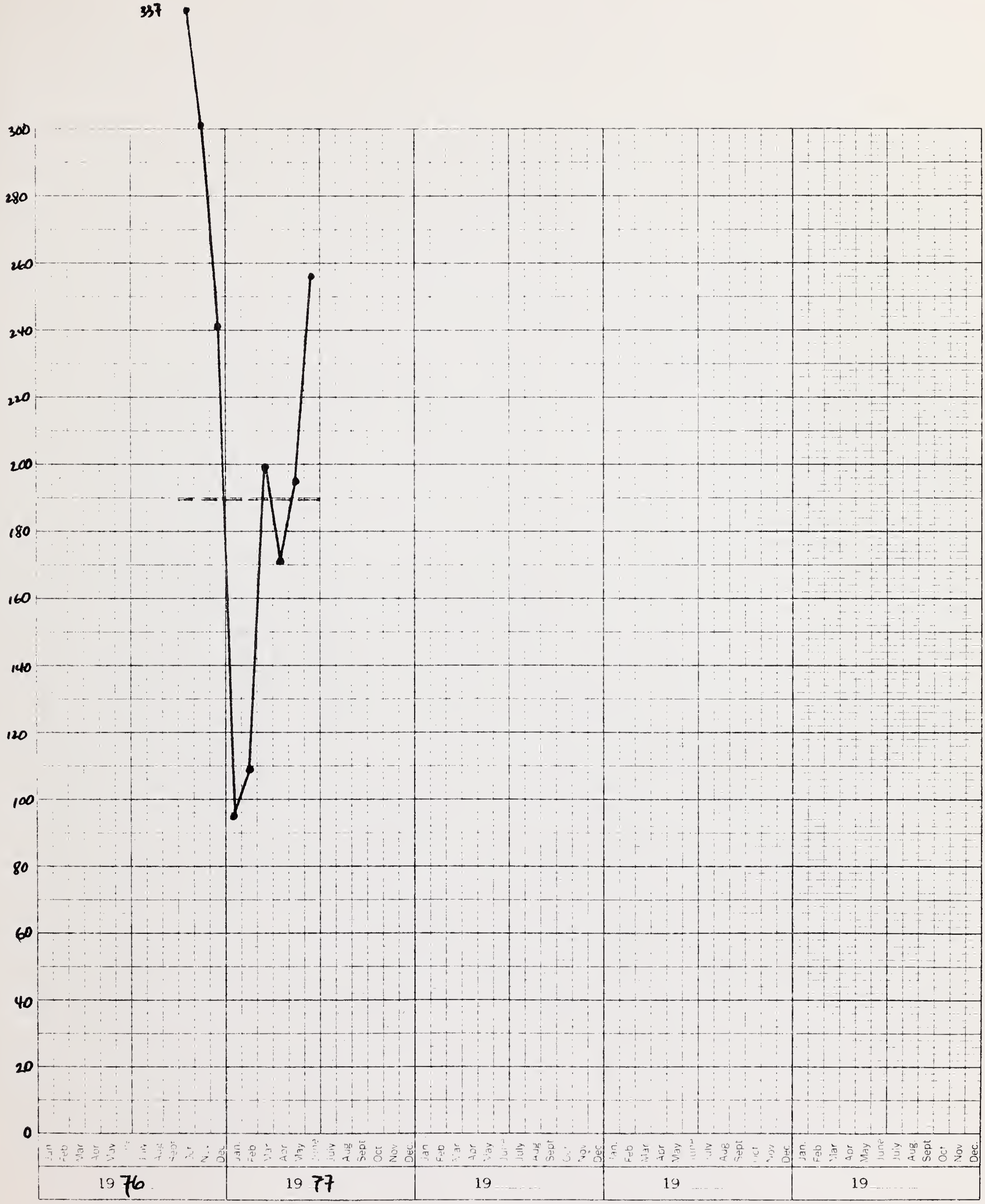
Western Energy Co. - Colstrip
Hi-Vol stations (Monthly Geo. ave. in ug/m³)
Area A & B



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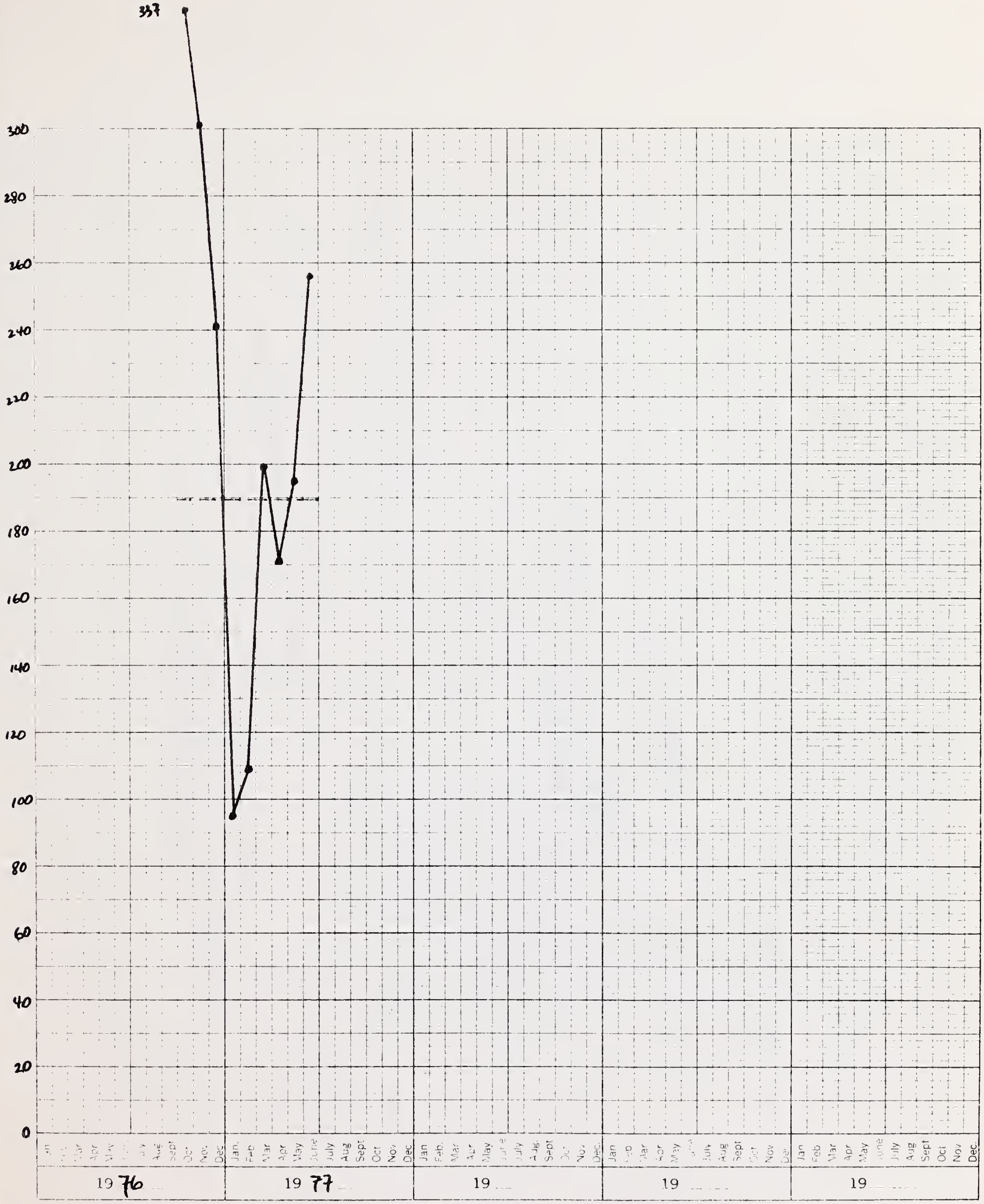
Western Energy Co. - Colstrip
Hi-Vol stations (Monthly Geo. ave. in ug/m³)
Area A & B



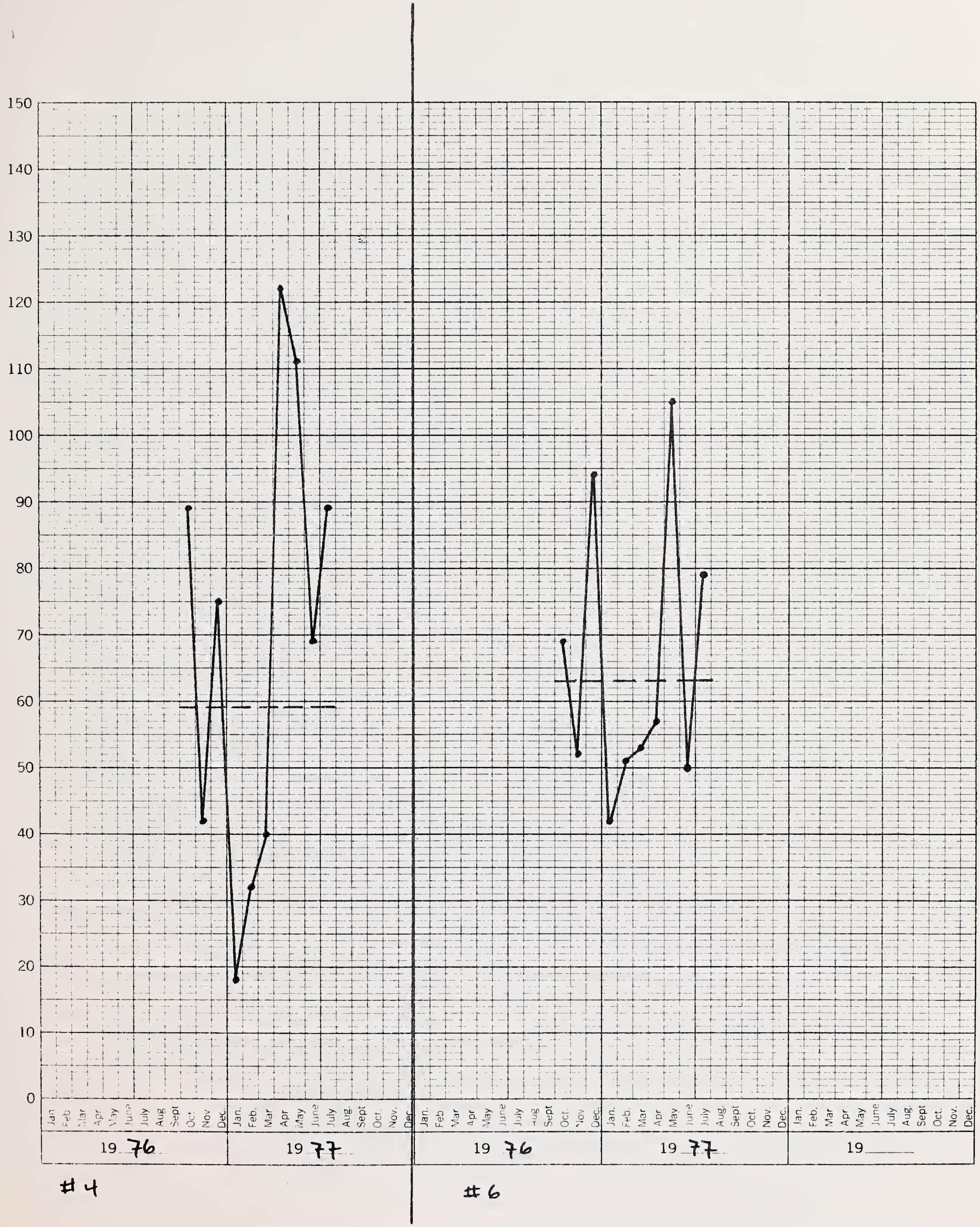
3

Western Energy Co. - Colstrip
Hi-Vol stations (Monthly Geo. ave. in ug/m³)
Area A & B

46 3410
K+E 5 YEARS BY MONTHS
KEUFFEL & ESSER CO.

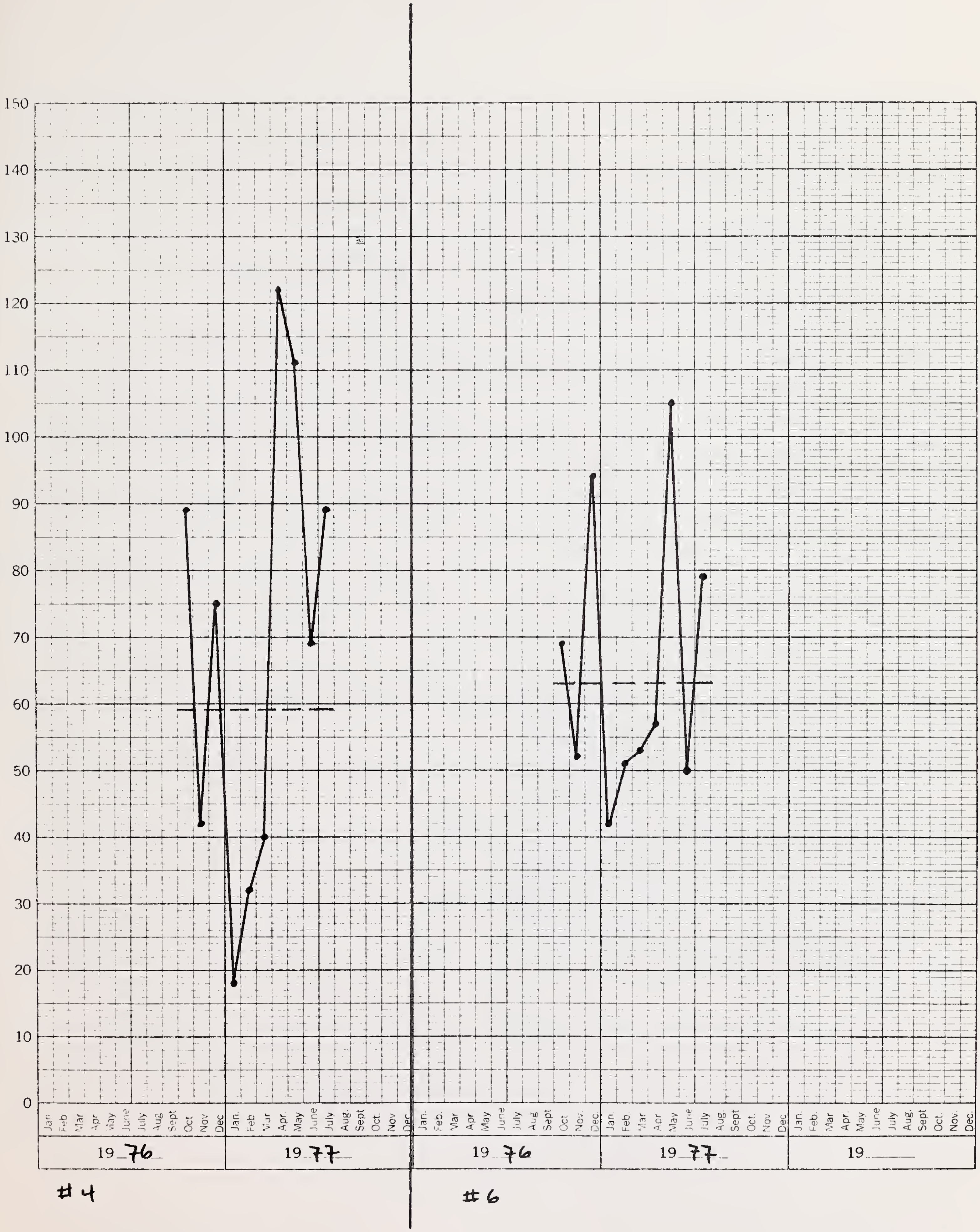
46 3410

K+E 5 YEARS BY MONTHS X 150 DIVISIONS
KEUFFEL & ESSER CO.



Western Energy Co. - Colstrip
Hi-Vol stations (Monthly Geo. ave. in µg/m^3)
Area A & B

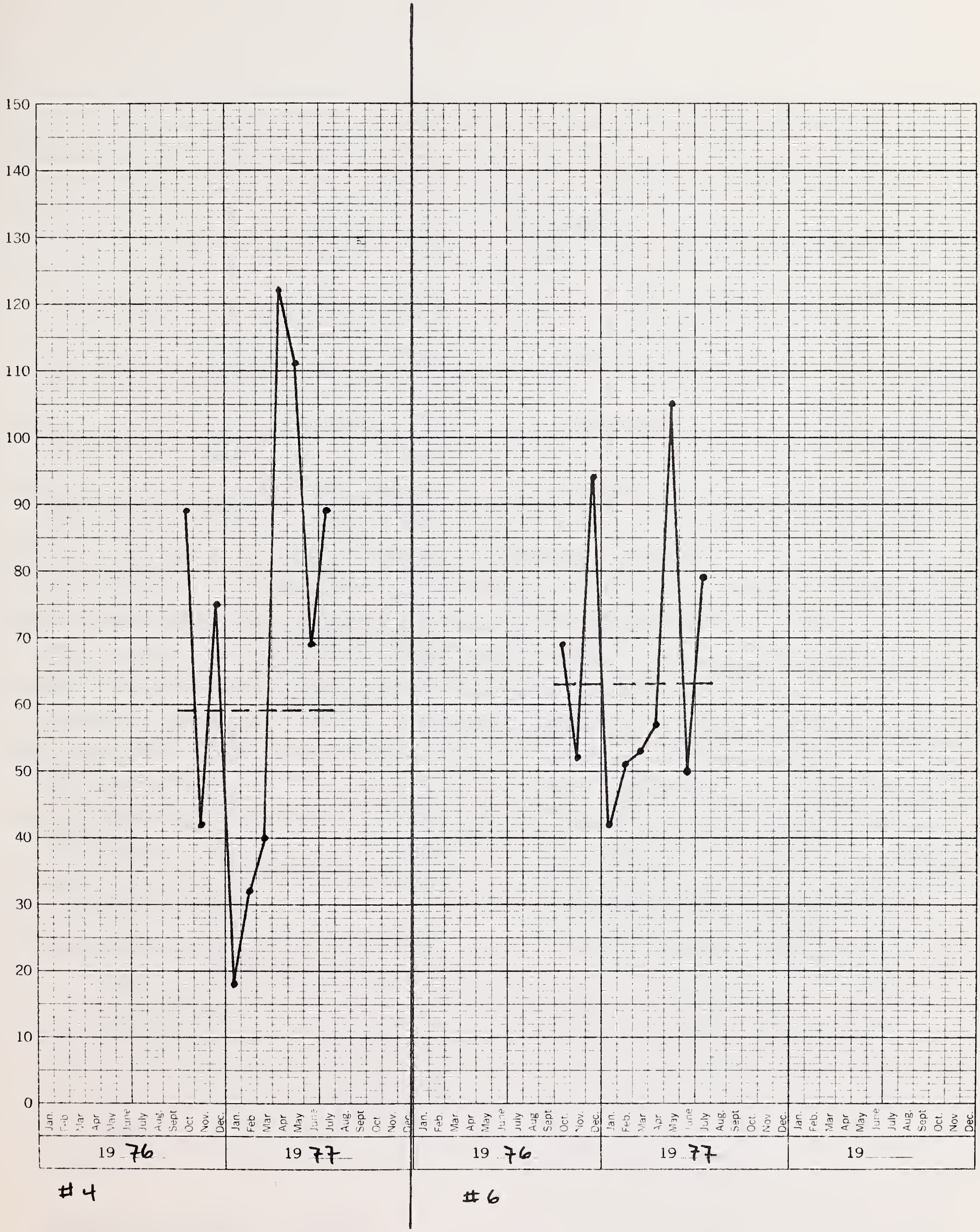
46 3410
K+E 5 YEARS BY MONTHS X 150 DIVISIONS
KEUFFEL & ESSER CO.



Western Energy Co. - Colstrip
Hi-Vol stations (Monthly Geo. ave. in $\mu g/m^3$)
Area A & B

46 3410

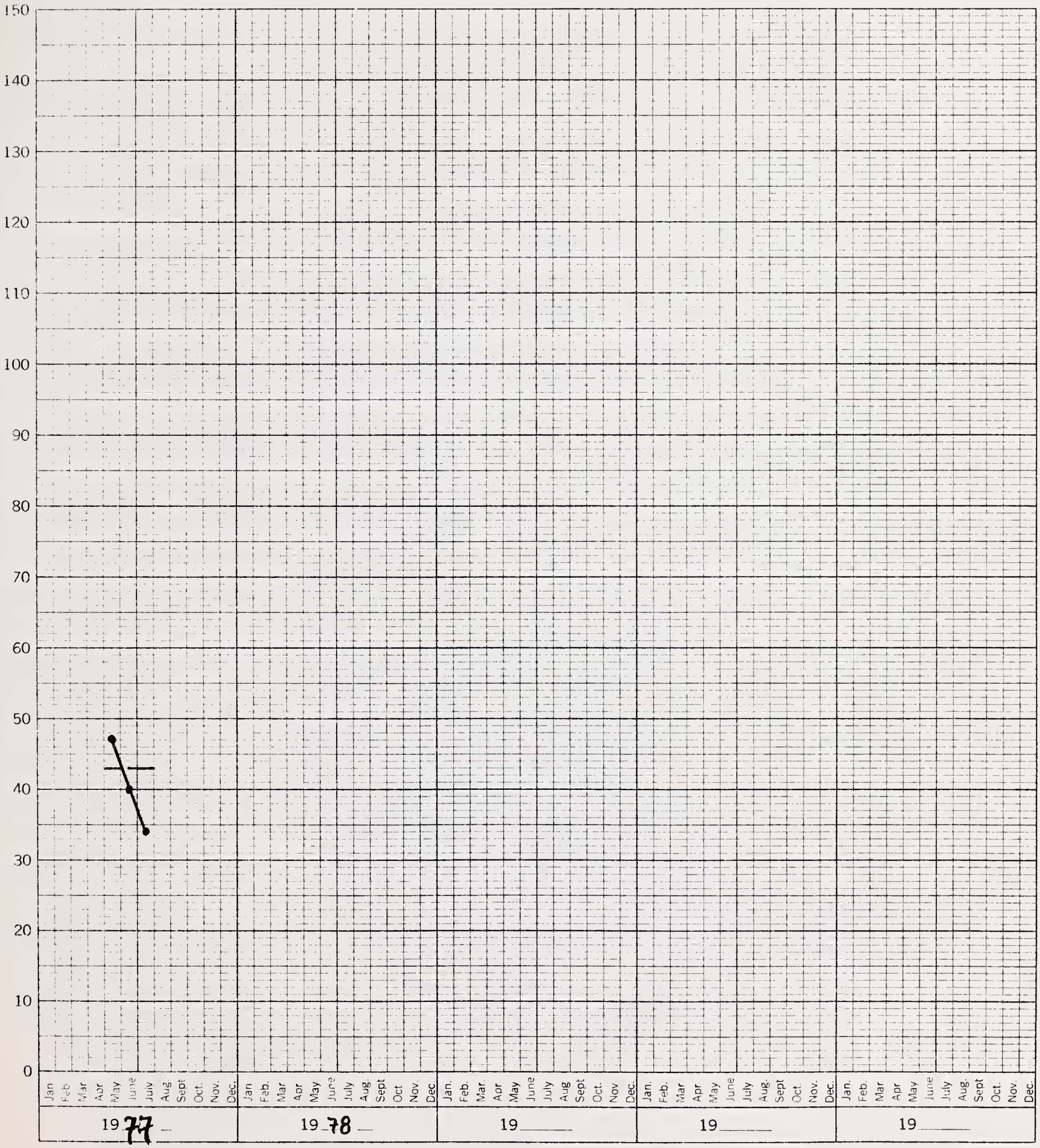
K+E 5 YEARS BY MONTHS X 150 DIVISIONS
KEUFFEL & ESSER CO.



Western Energy Co. - Colstrip
Hi-Vol stations (Monthly Geo. ave. in ug/m^3)
Area A & B

46 3410

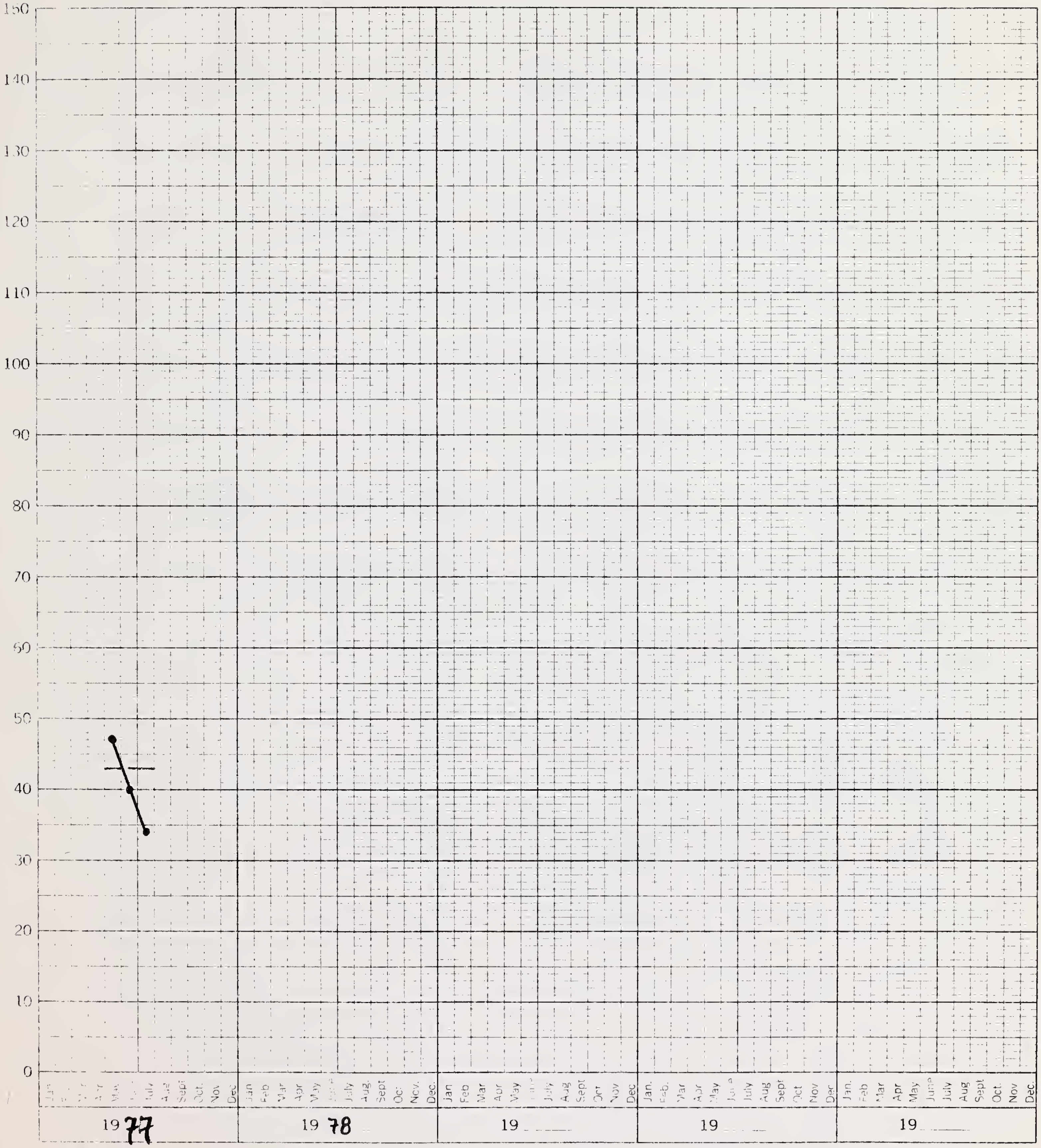
K+E 5 YEARS BY MONTHS X 150 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.



#5

Western Energy Co. - Colstrip
Hi-Vol stations (Monthly Geo. Ave. $\mu g/m^3$)
Area A & B

46 3410

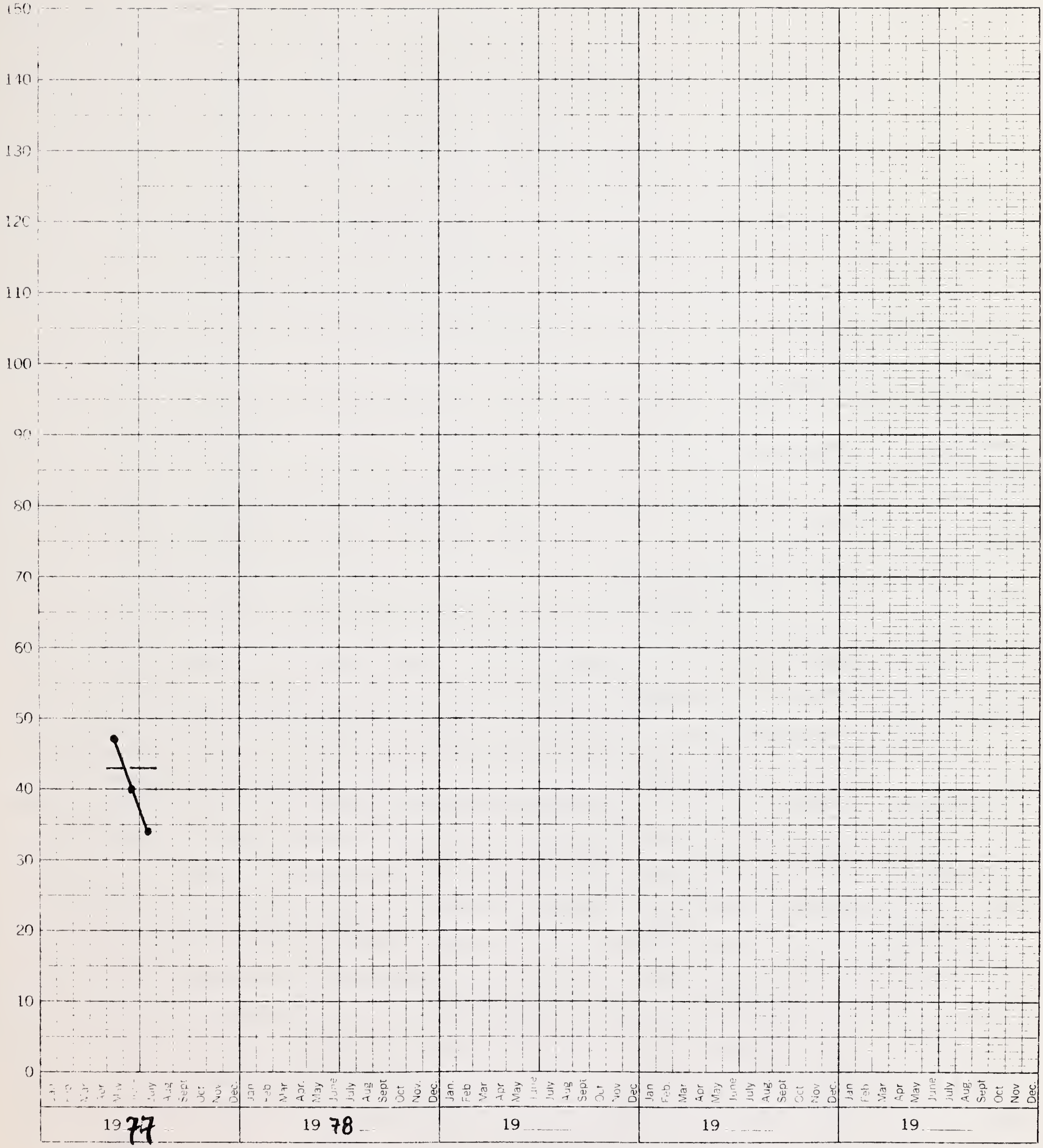


#5

Western Energy Co. - Colstrip
Hi-Vol stations (Monthly Geo. Ave ug/m³)
Area A & B

46 3410

K+E 5 YEARS BY MONTHS KEUFFEL & ESSER CO.

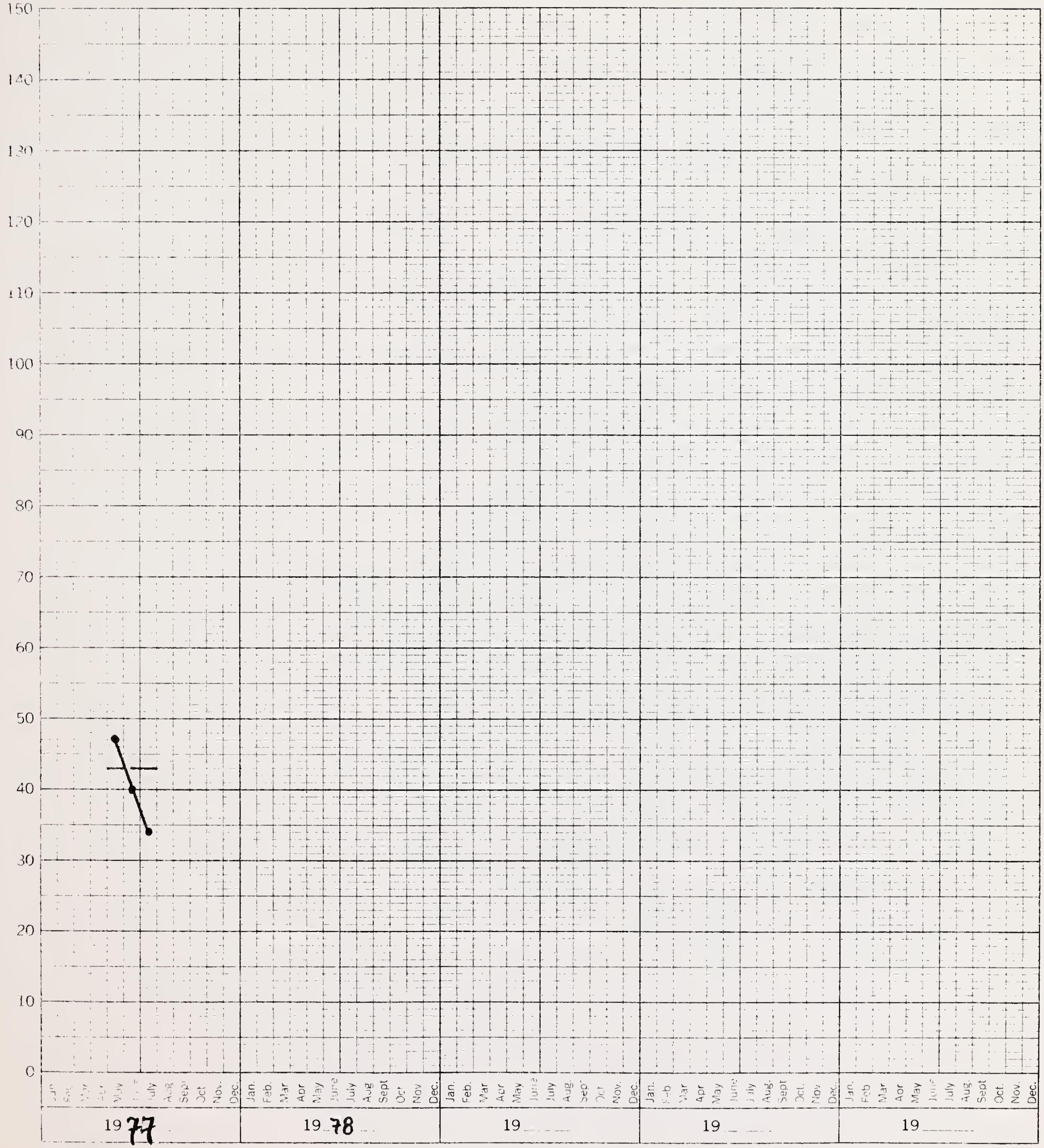


#5

Western Energy Co. - Colstrip
Hi-Vol stations (Monthly Geo. Ave µg/m³)
Area A & B

46 3410

K+E 5 YEARS BY MONTHS X 12 DIVISIONS KEUFFEL & ESSER CO.

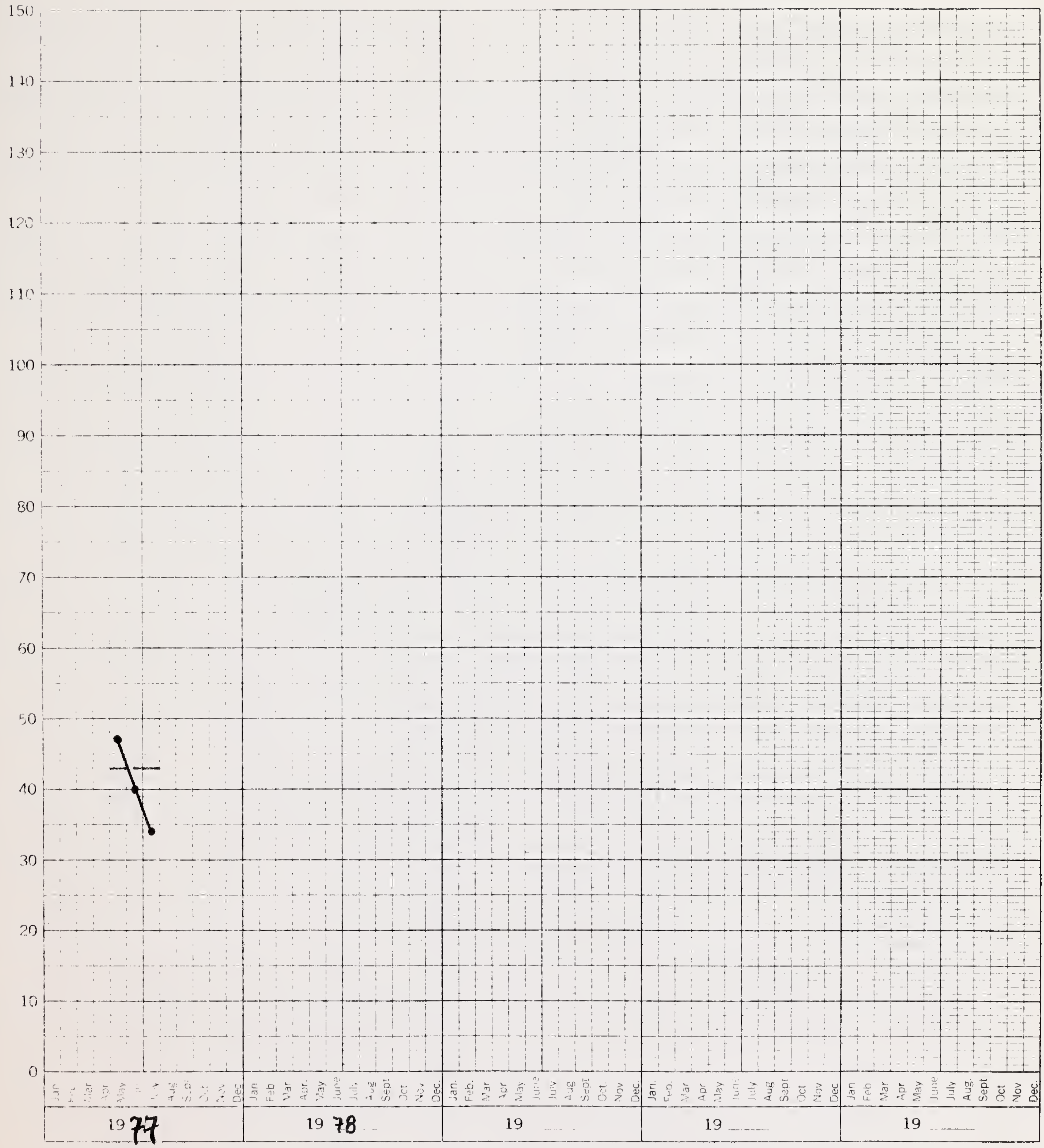


#5

Western Energy Co. - Colstrip
Hi-Vol stations (Monthly Geo. Ave. ug/m³)
Area A & B

46 3410

K&E 5 YEARS BY MONTHS X ... DIVISIONS
KEUFFEL & ESSER CO.

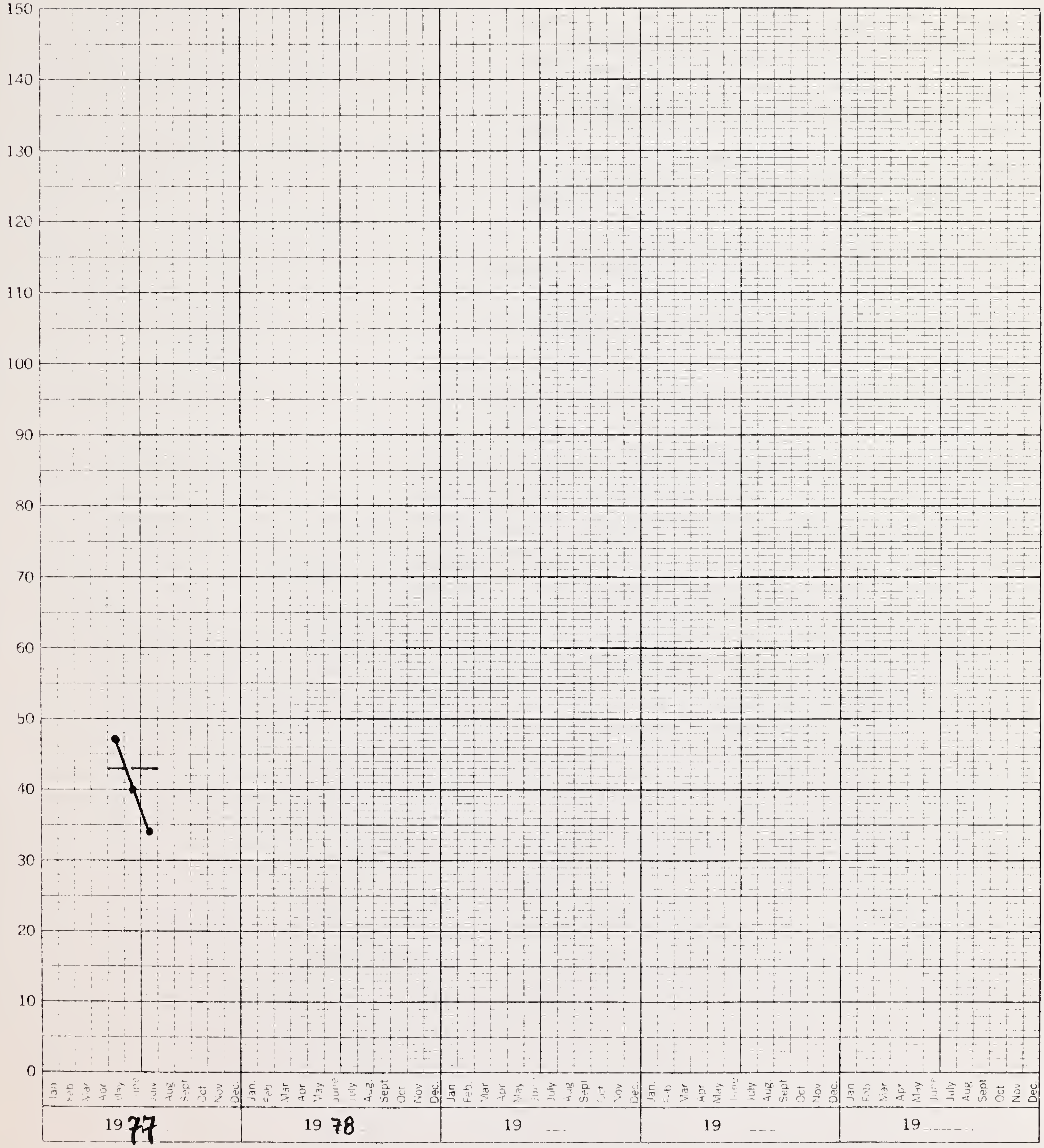


#5

Western Energy Co. - Colstrip
Hi-Vol stations (Monthly Geo. Ave $\mu g/m^3$)
Area A & B

46 3410

K+E 5 YEARS BY MONTHS X DIVISIONS
KEUFFEL & ESSER CO.



#5

Western Energy Co. - Colstrip
Hi-Vol stations (Monthly Geo. Ave ug/m³)
Area A & B

ACCOPRESS®

25171	BLACK
25172	LIGHT BLUE
25173	DARK BLUE
25174	LIGHT GRAY
25175	LIGHT GREEN
25176	DARK GREEN
25177	TANGERINE
25178	RED
25179	EXECUTIVE RED
25170	YELLOW

GENUINE PRESSBOARD

ACCO INTERNATIONAL INC.
CHICAGO, ILLINOIS 60619